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THE APPROACH TO THE "ACUTE ABDOMEN."*

By EDWIN P. LEHMAN, M. D., University, Va.

Your committee suggested that I take for my subject the "acute abdomen." I suppose no paper has ever been written on this subject that has not begun with a discussion of the merits of the term. The purists have denounced it on the obvious basis of its non-grammatical construction. Practical men have accepted it for its usefulness, of which there is no question. It presents a particular clinical picture which often enough cannot be better defined. It is medical slang, and like all good slang, it has point and brevity. It is elliptical for "the abdomen of acute surgical disease," a phrase that defies every day use. But, like the best of slang, it has its place in conversation. For those who, as liberally educated men, have some slight interest in the preservation of the purity of our language, it has no place in written speech.

If we seek to define the phrase, we find ourselves describing the condition. It is, in brief, the clinical picture presented by an individual who needs more or less prompt laparotomy. It is recognized by a group of symptoms, of signs, of laboratory findings, which, taken separately and together, combine into the picture.

I do not intend to describe the picture in detail. It is familiar to all of you. Its essential elements are, of course, pain, vomiting, distention, malaise, tenderness, rigidity, tympanites, fever, tachycardia, polymorphonuclear leucocytosis. Such a list means only that from a combination of its elements the diagnosis can be reached. It does not take into consideration a host of other findings that must be known and weighed. As in any diagnostic problem, the negative findings are often of more importance than the positive. Changes in the urine rarely have positive significance in acute surgical disasters in the abdomen. A urine rich in pus that is observed in a case of acute right-sided abdominal pain, may be of decisive negative value.

There is held an entirely different point of view towards acute abdominal disease from that held towards chronic abdominal disease. This difference depends on the element of time alone. As the surgeon's diagnostic resources increase with the addition of new methods and the refinement of old, he enters the abdomen in chronic disease with more and more certainty of what pathological changes he will find and what treatment he must carry out. Such certainty leads to quick and accurate work, to the elimination of the emergency decision. The major portion of his sureness of diagnosis comes from his clinical ability, which comprises accuracy of historical data, closeness and completeness of observation, shrewd inference from his findings based on a wide knowledge of disease and its infinite manifestations. To these are added the simpler laboratory examinations. If these means fail him, he calls upon the more complicated laboratory methods, the chemical examination of the blood, the roentgen ray, and so forth. In the chronic case, these are all at his disposal. Modern surgery is becoming suspicious of the words "exploratory laparotomy." Until our pre-operative diagnostic methods and acumen become enormously more efficient, these words will still be necessary occasionally. The final diagnostic resource of seeing and feeling and the biopsy must be employed. But "exploratory laparotomy" in chronic disease is unquestionably becoming less and less frequent.

The peculiar interest that acute abdominal disease offers, lies in the fact that the more elaborate diagnostic aids are not available. The doctor is thrown back upon his own abilities in questioning and observation, aided by a few simple laboratory procedures. Time lacks for anything else. Decision on treatment must be made before the appendix ruptures, or the stomach content escaping through a

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From the Department of Surgery and Gynecology, University of Virginia School of Medicine.

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perforated ulcer establishes a peritonitis, or the toxaemia of an acute obstruction becomes overwhelming. For this reason the exploratory laparotomy is frequently thoroughly justified in the face of acute abdominal disaster.

As a corollary of this conclusion, it becomes obvious that the surgeon must first decide whether or not the particular abdomen needs laparotomy. The accurate diagnosis of the intra-abdominal condition present may have weight in making the decision. But often enough, any attempt to make such an accurate diagnosis is incidental to the primary question and of value only in preparing the patient, the surgeon and the operating equipment for eventualities.

The surgeon sees too many acute abdominal disasters that have gone untreated until the patients are beyond help. Frequently this is due to the stupidity or fear of the patient himself who does not call a doctor. Too frequently it is due to the doctor whom he calls and who does not recognize the condition. On the other hand the surgeon operates too frequently for acute abdominal disasters when none are present. The family doctor, who sees most of these cases first, and the surgeon, who treats them, are neither without fault. To correct their deficiencies, they must look at this problem from somewhat differing angles. The family doctor must answer the question: "Can this be a surgical condition?" The surgeon, when the case reaches him must add: "Can it be anything else?" It is the attack on the diagnosis from these two points of view, that I plan to consider.

"Can this be a surgical condition?" The family doctor works under two difficulties, one of which is a real handicap. He ordinarily does not have promptly available the simple laboratory tests. This, of course, means that he is thrown still more on his own resources. A habit of mind that prevents him from using those resources is his second difficulty. The family physician sees ninety-nine cases of abdominal pain that are not surgical to one that is. To the man of active, alert mind, this circumstance is challenging. He is determined never to let the hundredth case escape his detection. In the practice of the routinist, the man who falls easily and comfortably into slovenly habits, the hundredth case does escape. To judge by the surgeon's experience, this genus still exists.

Of course, the most careful man will err occasionally; and the failure in an instance or two to recognize acute surgical disease of the abdomen does not therefore condemn him. The point that I want to make emphatically is that the careless man will rarely recognize it.

This implies that every case that offers a presenting symptom of abdominal pain must have a certain minimal preliminary study. In the ninety-nine cases, this study will be unnecessary; in the hundredth it may save a life. The case must have a history, which the intelligent examiner will vary with the age, the sex, the obvious degree of illness, and other factors. The most significant points to be determined are as follows: (1) General state of health; (2) Particular state of health just previous to the onset of the presenting symptom; (3) Presence or absence of previous attacks of the same or similar nature; (4) Presence or absence of similar attacks near the time of onset among members of the family or school or boarding-house; (5) Occupation; (6) Character of the onset of symptoms, gradual or sudden; (7) Association of the onset of symptoms with some possibly related incident such as a food or a meal of unusual character, a debauch or an injury; (8) Character, severity, location, radiation and alterations in the pain; (9) Occurrence and frequency of vomiting and the character of the vomitus; (10) Ordinary habits of defecation and any change therein, such as unusual constipation or a diarrhoea, together with any abnormality of the stool; (11) Occurrence of distention; (12) Occurrence of a chill; (13) Details of menstruation, the time and character of the last period especially; (14) Treatment, especially catharsis, administered before the arrival of the doctor. This list is not intended to be all-inclusive; there are many other specific questions that are indispensable to an accurate diagnosis. But these are enough, taken with the minimal examination to answer the question, "Can this be a surgical condition?"

The minimal examination is brief and easily done,—a pulse count, a measurement of the body temperature and an examination of the abdomen. With this information it is often easy for the physician to be definite in his decision that it is not a surgical condition. In this case it behooves him to continue with history and examination until he can approach a

diagnosis. In the case of a small boy who confesses an amazing dietary indiscretion, who has been vomiting and has diarrhoea, the diagnosis seems obvious. But until the physician has felt the abdomen, he cannot rule out appendicitis. It is more often the failure to feel the abdomen than any other one thing that leads to the missed diagnosis. If, in any case of acute abdominal pain, the abdomen is scaphoid, soft everywhere and without tenderness, the presence of an acute surgical emergency is extremely doubtful. If the examiner finds definite or doubtful rigidity with tenderness, he had better answer the question in the affirmative. The answer is not, "This is an acute surgical condition." It is "This can be an acute surgical condition. I had therefore better let the surgeon decide whether it is or is not." A useless trip to the hospital is far better than one too late. The medical man had better choose as his surgeon one who will always ask himself what conditions that do not demand laparotomy might be present. The decision on whether or not an operation is indicated is, after all, the surgeon's responsibility. A physician who insists on the surgeon operating when he tells him to, misses the value of consultation and, if his operator obeys, is subjecting his patients to a technician and not to a surgeon.

The failure to consult a surgeon through carelessness or incompleteness of examination, is no worse than the prescribing of treatment of any sort under similar circumstances. The abuse of cathartics in abdominal pain is among the worst mistakes with which our profession must reproach itself. No more serious error of judgment can be made than to purge in the presence of known or suspected intestinal obstruction or peritoneal irritation. The prescription of cathartics over the telephone or at the bedside without a previous examination of the abdomen is a professional crime. It may appear unnecessary to make such familiar statements or to make them so positively. Unfortunately every surgeon can testify to the constantly recurring experience of operating upon cases of intestinal obstruction or peritonitis following catharsis. And he will add, further, that those cases are almost invariably among the sickest he is called upon to treat. In considering this testimony it may be argued with all justice, that the carelessness or ignorance that will purge when these conditions cannot be ruled out, is the very carelessness and ignorance that fails to recognize their possible presence. Often enough, the catharsis is home-given, the blind following of a hoary tradition that the emptying of the bowel will cure abdominal pain. The housewife sees too many cases of green-apple colic satisfactorily cured by this method. As modern knowledge has grown of the reaction of the peritoneum to infection and of the mechanics and bio-chemistry of intestinal obstruction, the medical profession has learned the error of its way. It will take many years of household instruction by countless physicians to control this almost instinctive impulse. There is a field here for public education in preventive medicine that each of us has a daily duty to cultivate.

A third frequent error on the part of the family doctor in these conditions is in the use of narcotics. The rule should be, never to give narcotics unless they appear absolutely necessary. The handicap under which the surgeon labors in attempting to diagnose an intra-abdominal disaster in a patient who has received a physiological dose of morphine is sometimes of crucial importance. This handicap works in several ways. In the first place, it means that the surgeon must take the description of the pain previously present from the patient's memory,—a deceptive method. In the second place, it means that areas of tenderness may be narrowed and sharpness of tenderness may be dulled. In the third place, it means that the protective rigidity of the abdominal musculature may be relaxed, and thus a sign of decisive value may be lost. In the fourth place, it means that alterations in the intensity of the pain may be blurred, leaving the surgeon unaware of significant progress in the course of the disease, either towards spontaneous recovery or progressive spread.

There is a place, of course, for morphine in these conditions. Pain may be so severe that shock is hastened or examination made unsatisfactory. As a surgeon, who must take the responsibility of operative decision later, I make a plea for the use of narcotics only under such urgent indications, and then only in doses sufficient to give relative ease and not complete relief. I do not fail to recognize that the withholding of morphine at the bedside with a group of anxious and sympathetic relatives about, takes a degree of moral courage.

The patient has now been brought to the

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hospital. Perhaps the doctor has gone only so far as to determine that the case may be surgical. This is the least he can do. If he is capable and interested, he has a complete diagnosis in many instances. It is now the surgeon's task. He has three steps to take. He is wise if first he answers the question already put: "Can this be anything except a surgical condition?" After that he must decide whether or not it is a case for immediate operation, and lastly, "What is the probable diagnosis?" These last two steps go hand in hand; either one may precede the other.

The surgeon has at his command resources that the family doctor often lacks. He can obtain examinations of the blood, the urine, the stool, the vomitus, with ease. Assistance is available whereby a catheter specimen of urine can be obtained readily and with safety. The fluoroscope is ready at his hand. In all cases he need not use all of these; examination of the blood, especially the absolute and differential count of leucocytes, and examination of the urine are essential in all cases. The surgeon must obtain his own history, and make his own physical examination. How complete these must be will be suggested by the remarks on the differential diagnosis that are to follow.

The conditions that the surgeon most frequently meets which are non-operative, but in which the presenting symptom is acute abdominal pain, may be classified first into those within the peritoneal cavity and those outside the peritoneal cavity. In general, one of three pathological situations must be present within the abdominal cavity to justify immediate laparotomy. These in the order of their frequency are: (1) A threat of infection of the peritoneum or an already established infection of the peritoneum which is spreading from a focus; (2) Complete obstruction of the intestine, with or without strangulation, except occasional early low obstruction; (3) Active continuing hemorrhage into the peritoneum or at times into the bowel. There are certain acute intra-abdominal diseases which are associated with no one of these three, but which present symptoms and signs closely resembling those of the acute operative cases.

One of the commonest of these conditions is acute infection of the gall-bladder. The majority of cases of this disease, even when an actual empyema of the gall-bladder is present, will subside spontaneously with rest and heat. Of those that go on to rupture, a good proportion will rupture into an inflammatory mass that has formed about the gall-bladder during the preceding period of infection. On a statistical basis, the threat of spreading peritonitis is slight. It is wise, therefore, not to consider acute cholecystitis as a surgical emergency unless there are increasing symptoms and signs of general sepsis, continued vomiting, and spread of tenderness and rigidity in the upper abdomen.

Gall-stone colic (and the same may be said of renal colic), in the absence of accompanying infection, is not often misinterpreted as an acute surgical condition of the abdomen. The absence of rigidity and a leucocytosis are usually determining factors. These syndromes ordinarily carry no threat to the peritoneum.

The commonest renal condition to create difficulty is pyelitis, particularly on the right side. Appendicectomy for pyelitis is a frequent mistake. The difficulty is increased both by the occasional presence of small numbers of pus cells and red blood cells in the urine in inflammatory conditions involving the peritoneum, and by the not infrequent normal urine found in cases of pyelitis with blocked ureter. Certainly the finding of any quantity of pus in the urine obtained by catheter is ground for caution. In children, vomiting may confuse the issue. True spasm of the abdominal muscles rarely occurs, but voluntary rigidity is common. Fever and leucocytosis are apt to range higher than in the ordinary type of early peritonitis.

The third important intra-abdominal lesion to be ruled out is inflammatory disease of the pelvic viscera in women. The keynote of modern gynecology in this field is conservatism, not only from the point of view of mortality, but also from the point of view of preservation of reproductive function. Under rest, heat, non-specific protein therapy, possibly diathermy, most of these inflammations will subside until a chronic stage is reached. Operation thereafter is simpler, safer and can be carried out with some knowledge of the ultimate function to be expected from the diseased organs.

The group of extra-abdominal diseases that may present acute symptoms simulating intra-abdominal surgical disasters may be classified according to the nature or location of the dis-

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ease under the following heads: (1) Transient digestive disturbances; (2) General infections; (3) Allergic phenomena; (4) Poisonings; (5) Intrathoracic disease; (6) Central nervous system disease; (7) Skeletal disease; (8) Rarer miscellaneous conditions. The differentiation of most of these from acute intra-abdominal disease requiring surgical intervention is usually easy if a complete physical examination is made. Error will come to the surgeon whose examination is limited to the abdomen. Let us mention briefly what conditions the surgeons must have in mind in each of these classifications.

The transient digestive disturbance is usually fairly well ruled out before the case reaches the surgeon. The latter must remember that perforation of a peptic ulcer and appendicitis not infrequently follow gastric indiscretion and that in a large proportion of cases the patient will somehow remember a similar indiscretion to explain any abdominal pain.

General infections which present abdominal complaints include typhoid, tonsillitis, scarlet fever and influenza. In the influenza epidemic of a year ago, the presenting symptom was frequently abdominal pain. I had at least a half dozen times to differentiate between this disease and an upper abdominal surgical lesion such as a perforating gastric ulcer. The history of upper respiratory disease or the gradual development of symptoms characteristic of typhoid fever, taken with the examination of the skin, the throat, the nose, the thorax and the abdomen will ordinarily differentiate these conditions.

Our knowledge of allergic phenomena is increasing rapidly. We are recognizing more frequently the occurrence of abdominal symptoms resulting from the allergic state. At least two different types can be differentiated. Henoch's purpura, the type of purpura associated with intestinal crises, has been shown in some instances, at least, to be of allergic origin. This disease produces its intestinal symptoms probably from interstitial hemorrhage into the wall of the bowel. It is associated with purpuric spots in the skin and ordinarily a relaxed abdominal musculature. The intestinal crises are characterized by intense general abdominal pain accompanied by vomiting. The warning may be given that these hemorrhages have been known to cause intestinal obstruction. In this case, of course, the condition becomes a surgical emergency. The second type of allergic manifestation that may cause confusion is that caused by transient edema of the intestine, a sort of mucosal or muscular "hives." Here again we have a soft abdomen. A striking differential point is found in the fact that, as in all pure colics, the patient seeks relief from pressure on the abdomen rather than by protecting it from pressure. A history of other symptoms caused by sensitization may suggest the diagnosis, for example, of attacks of hives, hay-fever or asthma.

Of the poisonings that present gastro-intestinal attacks, chronic lead poisoning has been the most frequent up to recent years. Prophylaxis against exposure to lead in the industries is making this condition much rarer. The finding of a "lead line," stippled blood cells, nervous system changes, with a knowledge of the patient's occupation will prevent laparotomy. Here again, the abdomen is soft and the patient seeks relief by pressure.

In the field of intrathoracic disease, the differential diagnosis from acute surgical conditions of the abdomen is notoriously difficult. Except possibly for those done for pyelitis, there have probably been more abdominal operations performed for diseases of the pleurae, lungs and heart than for any other extra-abdominal conditions. There are three diseases that are apt to present abdominal symptoms. The first of these is pneumonia, particularly with involvement of the diaphragmatic pleura. In young children in whom any infection may be associated with vomiting and in whom we know for embryological reasons that the appendix may be situated high on the right side, this confusion is particularly apt to occur. No laparotomy for acute disease is to be done without an adequate clinical examination of the chest. In doubtful cases a fluoroscopic and film examination is to be added.

In elderly individuals, diseases of the coronary vessels frequently simulate upper abdominal disease. The difficulty of differentiation is increased by the fact that in the intervals between their more acute manifestations, these diseases are frequently associated with chronic digestive disturbance resembling the symptoms of chronic cholecystitis. The history of the onset of pain with effort and the presence of symptoms and signs of myocardial weakness together with a pericardial friction rub are suggestive evidence.

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The third thoracic condition that must be considered is fracture of a rib in the lower one-third of the chest. Pain from such a fracture may be referred to the abdomen, and the protective muscle spasm associated with it may involve the abdominal musculature. Occasionally contusion of the chest may create the same syndrome. An example of this nature will be cited below.

Among central nervous system diseases that may simulate acute intra-abdominal lesions are tabes dorsalis and meningitis. The gastric and intestinal crises of the former are always to be in the back of the surgeon's mind.

Deformities and diseases of the spine and sacrum are not infrequently confusing. Root pains from hypertrophic osteo-arthritis, metastatic carcinoma of the vertebrae or Pott's disease must always be borne in mind. Sacro-iliac arthritis occasionally presents both pain and tenderness simulating those of appendicitis.

This list of non-surgical diseases that lays a trap for the unwary surgeon is formidable. If we analyze, however, the procedures that will give us a reasonable certainty of avoiding laparotomy in the presence of such disease, the situation at once becomes simplified. An examination of the eyes, nose, mouth, and throat, of the thorax, of the skin, of the reflexes, of the spine, as well as the usual abdominal, vaginal and rectal examinations,—in short, an adequate general physical examination, together with a proper examination of the urine and the blood smear and a count of the white cells, will serve to detect in the majority of instances any of these non-surgical diseases. This requirement is no greater than the ordinary duty of the physician to his patient. There will remain a certain proportion of cases in which there is still doubt. In these, the more elaborate methods, such as the X-ray, may have to be employed.

If, now, the surgeon is reasonably certain that he is not dealing with an extra-abdominal source of symptoms, he must decide for or against immediate laparotomy and at the same time attempt to refine his diagnosis. The typical case of acute appendicitis seen twelve hours after onset, the case of intestinal obstruction from strangulation of an inguinal hernia and the case of perforation of a previously known duodenal ulcer are examples of reasonably obvious and simple diagnoses which themselves determine the treatment. At the other end of the scale are the cases that present no characteristic phenomena but that nevertheless demand operation. The young adult with a negative recent history who for twenty-four hours has suffered severe generalized abdominal pain without localization, vomiting, prostration, who presents an anxious expression, a rigid abdomen exquisitely tender everywhere, a rapid pulse, costal breathing, and a leucocyte count of 20,000—such an individual presents the picture that justifies immediate exploratory laparotomy. No diagnosis beyond that of acute general peritonitis is possible. Whether the origin is a ruptured appendix, a perforated ulcer, a Meckel's diverticulitis, a rupture of a suppurating mesenteric gland, or what not, cannot be said.

Between these two extremes lies a great group of cases in which the diagnosis is less certain than in the former instance and more certain than in the latter. In this group the decision on immediate laparotomy is sometimes less clearly indicated than in either of the other two. This group contains the cases in which the pros and cons must be weighed with the utmost care.

A particular class of case in this group must be distinguished, namely, the class of case in which temporizing hour by hour may be indicated. An exploratory laparotomy, of course, in cases of doubt is in the long run safer than delay. (There are certain important exceptions to this dictum to be discussed below). Therefore, the cases that are to be watched, with the idea of surgical intervention when indications warrant, are distinctly limited in number. This course is to be pursued only when there are very definite reasons that can be clearly stated. A case seen very early in the progress of the disease can occasionally be safely watched for a few hours, if the first hour indicates subsidence of symptoms and signs. This type of case frequently presents such slight findings that delay is obligatory. A case seen later in the disease that gives a history of distinct improvement in symptoms during the preceding three or four hours is another example. A case that has been travelling for several hours, is fatigued, perhaps chilled, so that the severity of the disease cannot be properly judged, had sometimes better be given two or three hours of rest. At the end of that time, the picture may be so altered that further delay is advisable. If there is evidence of progress of the disease in the in-

terval, the decision to observe can be at once reversed. The case that has been mistreated, that has not had a fair opportunity to overcome infection, sometimes comes into this class. An example is the case that has been soundly purged and that arrives at the hospital without too urgent signs. And, lastly, of course, the case that is presented in profound shock. In complete intestinal obstruction, except obstruction low in the bowel and except when the patient is moribund, never should delay in operation be contemplated.

Observation in these cases is a very tentative course, which may be given up at any moment. During the period of observation certain minimum provisions must be established. In the first place, the patient with suspected acute surgical disease of the abdomen must be in a hospital. No physician is warranted in watching such a case in the patient's home. The patient must have charted curves of pulse and respiration rate and temperature. The interval of recording will vary with the severity of the case. At times every two hours will suffice. In other instances, as, for example, in shock, the readings must be taken every few minutes. It is the duty of the surgeon to specify the intervals in each case. In the presence of shock, frequent readings of the blood pressure must be added. The leucocytes of the blood must be counted frequently. Occasionally I have had this done as frequently as once an hour; in the usual case every two or three hours will be sufficient. The nurse's record must contain notes on the patient's vomiting and on his complaints. If all this information is accurately gathered, the surgeon can judge the progress of the case as he sees it from time to time. A glance at the temperature, pulse, respiration, and leucocyte curves, a note of the presence or absence of vomiting, a brief summary of the patient's change in subjective state, a glimpse at his face and a careful examination of his abdomen searching for alterations in tenderness and rigidity, will give a basis for decision on the question of laparotomy or further delay.

In the meantime, treatment must be prescribed. The most important elements in the treatment are entirely negative. The ultimate aim of the treatment is twofold—to give the diseased organism every opportunity to overcome infection, and to handicap the surgeon as little as possible in his diagnosis. The four most important negative factors are: (1) Complete rest in bed; (2) No catharsis; (3) Nothing by mouth; and (4) No morphine or other narcotic unless absolutely unavoidable. The provision that nothing shall be given by mouth is absolute. The act of swallowing may start a rush wave of peristalsis that will sweep from one end of the bowel to the other. Therefore even water is interdicted. The tongue may be kept moist by wiping it with moist gauze. If the patient needs water, as most of them do, it must be given in other ways. For rectal administration I have a preference for the intermittent instillation of relatively large amounts, for example, of 300 c.c. every four hours for the average adult. I have found it to be better retained and to cause less discomfort than the continuous drip. This should be supplemented by the intravenous or subcutaneous administration of physiological saline. The intravenous method is preferred on account of its greater degree of comfort except in cases where it is not desirable to overload the heart. The free use of saline is important also in replacing chloride lost by vomiting. Glucose in 5 per cent or 10 per cent solution can be added if starvation lasts longer than a few hours, or if the patient has had a prolonged period of illness behind him. An ice-bag or a hot-water bottle placed on the abdomen is often comforting. Each probably creates the same physiological reaction, namely, a reflex hyperaemia of the abdominal viscera. The choice hinges only on the patient's subjective reaction. The one that makes him most comfortable is the one he can have. An enema is sometimes indicated at this stage; but it is to be remembered that the receiving and expulsion of an enema is not a restful occupation. Furthermore, a certain amount of peristaltic activity is unquestionably created by this means. On the other hand, we have all seen abdomens that have presented all the criteria of acute surgical disease until the giving of an enema, after which all symptoms and signs have disappeared. In shock or hemorrhage, a transfusion is often desirable. These simple measures comprise the sum total of permissible treatment during the period of observation.

The result of the period of observation may be immediate laparotomy at any stage, recovery without laparotomy, or the progress of the disease into a chronic stage during which operation can be done after adequate diagnosis and under relatively favorable circumstances.

We have classified diseases presenting ab-

dominal symptoms under surgical and non-surgical heads. Another aspect of this problem is suggested by reclassifying the non-surgical group from another point of view, namely, from that of the danger of laparotomy. As judged from statistics of the mortality for operations for acute appendicitis without peritonitis, the mortality of laparotomy itself is low. In a group of cases reported by Quain and Waldschmidt, operation for this type of appendicitis was followed by a mortality of about 1/3 of 1 per cent. The mortality from simple laparotomy in the absence of any disease would unquestionably be even less. This figure is, of course, enormously less than the rate of diagnostic error of even the most able surgeon in the doubtful case of abdominal disease. Laparotomy is, therefore, indubitably safer than failure to operate in the case which may or may not belong to the class of surgical emergencies, provided only that the circumstances of the case do not increase the risk over that of simple laparotomy. The risks of simple laparotomy comprise those of any surgical accidents secondary to operating and not dependent on the disease. Anesthetic death, surgical wound infection, pulmonary embolism, these are the main elements.

Certain of the conditions that must be differentiated from the surgical emergencies definitely add to the risk of laparotomy. The upper respiratory infections, pneumonia, some of the general infectious processes, and coronary disease are the important instances of this group. In cases in which doubt exists in the differential diagnosis, when the alternative condition is one of these, delay is often far safer than operation. In this type of problem, the surgeon's experience and sagacity are all-important.

In others of the group operation may do no harm. Let me illustrate by the story of a recent case. A medical student had been under observation several times for right lower quadrant pain. His findings were suggestive but never typical of appendicitis. He was seen in and between two acute attacks. He had a few white cells and a few red cells in his urine, and a leucocyte count rather higher than his symptoms and signs of appendicitis would justify. The differential diagnosis between urinary infection and appendicitis was never clear. As his symptoms subsided promptly under observation, he was allowed to leave the hospital without operation. On his third attack, the picture was no clearer than before. Pain in the right lower quadrant with diffuse tenderness and no spasm, nausea, a leucocyte count of about 18,000 and a temperature of 100 degrees F., completed the syndrome. Except for the same findings in his urine as before, no other abnormal findings were made. In this instance it was felt that appendicectomy would carry with it no danger greater than that of laparotomy and that the removal of the appendix would clear the way for more definitive diagnosis and treatment. In spite of the removal of an appendix that showed only slight pathological evidence of disease, I believe that the proper course was pursued. This patient, of course, had had a complete study for chronic abdominal symptoms in the interval between attacks, without evidence of disease of the appendix or of other organs. An exploration at the time of appendicectomy confirmed the absence of gross disease of other structures.

A case that illustrates several of the matters we have been considering deserves brief mention. The patient that presents acute abdominal symptoms after injury is frequently one of the most puzzling we have to deal with. A man of 44 years was thrown against the steering-wheel of his automobile, striking the region of the xyphoid. He was admitted to the hospital 30 minutes after the accident. There had been no unconsciousness and no vomiting. Examination showed a contusion in the region of the blow, a fracture of the nose, a lacerated wound over the right tibia, later found to be associated with an incomplete fracture, and multiple abrasions of the hands. The patient was extremely restless, complaining bitterly of pain in the epigastrium and in both hypochondria. There was no appearance of shock. The pulse rate was 70, the rectal temperature 98 degrees F. There was marked tenderness and spasm in the epigastrium. The rest of the abdomen showed voluntary rigidity. Compression of the thorax laterally produced pain, but no skeletal deformity or crepitus was made out. There were no signs of free fluid, and the extent of liver dullness was normal. No evidence was found of injury to the spine. The examination of the lungs showed no evidence of fluid or consolidation. All reflexes were normal. The urine contained a very few red blood cells. Forty-five minutes after injury

the leucocyte count in the blood was 11,200.

The problem presented by this man was that of the lower thoracic injury which so often produces abdominal signs. At the time he was first seen, there were numerous data against rupture of an abdominal viscus. The normal pulse rate, the slight elevation of leucocyte count, the absence of nausea or vomiting and the localization rather than generalization of rigidity were inconsistent with marked intra-abdominal injury. Furthermore, in the presence of a possible contusion of the heart or lung, operation would unquestionably be more dangerous than under ordinary circumstances. The reasons for placing this man under observation were obvious; they fulfilled the requirement that they could be clearly stated.

Observation was instituted in the manner described. In the course of four hours his leucocyte count rose to 20,000 and his pulse to 96. Rigidity in the abdomen varied. Just before operation it was probably less than at any time. The patient continued restless, but there was no shock and he did not appear sick or anxious. He did not vomit. There was variable tympany over the liver region.

During the four hours there was, of course, opportunity to carry out rather more detailed examinations, which with one exception added no further information. The patient was placed under the fluoroscope and it was thought that a bubble of gas could be seen between the liver and diaphragm. Negative information of great value was furnished in the normal appearance of the lung fields.

The following note was made at this time: "In spite of the patient's good general appearance and the improvement in the abdominal signs, it does not seem wise to observe the patient longer. There is nothing in the picture to explain the leucocytosis and possible gas under the diaphragm except visceral rupture." The presence, of course, of a true pneumoperitoneum as shown by X-ray is definite evidence of this injury. In the present instance the radiographer was uncertain.

On exploration, no injury was found and the patient made an uninterrupted recovery. Shortly after he left the hospital, he suffered from a severe pneumonia, which must be considered as a possible, though doubtful, operative complication.

The difficulties of this problem are well illustrated by this experience. Again, I think that, although the operation showed no injury, the proper method of handling the case was employed. It was safer to have operated and found nothing than to have run the real risk of visceral injury. If visceral injury had been present, the delay of a few more hours would probably have meant an established peritonitis. The surgeon often has the feeling in facing such a problem that decision in either direction will be wrong.

The "acute abdomen," representing an infinite variety of disease, is a vast subject of infinite complexity. It has been discussed from many angles by many men. In the last analysis, its successful handling is a matter of surgical judgment. Nothing much can be written in a short space that will help in solving the problem that any individual case may present. The greater one's experience and the more one contemplates the subject, the more complex does it become. I have tried rather to indicate a method of approach to the individual case than to attempt the impossible, a clear-cut picture of a syndrome with a thousand variations. Perhaps I have succeeded in pointing out only the difficulties and thus confusing the issue still further. If I have made one point, I am content, namely, that in no other group of conditions are honest, conscientious, complete and intelligent anamnesis and examination more fully repaid than in the group of surgical emergencies in the abdominal cavity.

TREATMENT OF INFECTED ABORTIONS.*

By SOUTHGATE LEIGH, M. D., F. A. C. S., Norfolk, Va.

It has come to our notice of late that, on account of the stress being laid during the past few years on the so-called conservative treatment of abortion, many of the younger members of the profession have arrived at the conclusion that the expectant treatment should be followed in *practically every case, regardless of the condition of the uterine contents*, or the presence or absence of complications.

This position has seemed to us to be such an unwise one that we have looked up the literature, both domestic and foreign, and have been much impressed with the various and divergent opinions expressed. The only unanimity of opinion is in the case of hemorrhage, where all agree that prompt and ap-

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propriate steps have to be taken to prevent depletion.

Clauser, a German, states as follows: "Every febrile abortion must be terminated without delay by removing all the retained fragments. The sooner this is done, the more favorable the prognosis. A conservative therapy is only justified in acute peritonitis and general sepsis. The active therapy gives excellent postoperative results, shortens the stay of the patients in the Clinic, and makes them able to work in the shortest time. The termination should not be made manually, but instrumentally, using an abortion forceps for the detached fragments and a blunt spoon for the adhering ones. It should be done by an experienced surgeon or practitioner."

Bovin, a Swede, favors waiting. He thinks there is no doubt that the danger of spreading the infection from active measures is graver than the danger from the focus of infection lying quietly in the uterus. The latter allows the production of antibodies against the infection.

Paci, an Italian, states that from statistics and his own results he is convinced that remnants of placenta and membranes left in the uterus are excellent culture media for bacteria, so he thinks curettage is indicated, and the sooner it is performed, the better the results. . . . He thinks there is a certain percentage of cases of septic abortion in which death will occur under either active or conservative treatment, the death depending on the severity of the infection, and not on the method of treatment. And women who are very anemic are less resistant to infection because of the weakening of their defense reactions.

Becker, a German, favors radical treatment.

Kustner, also German, states that "two diverging powers must be weighed, when one has to decide whether or not an infectious focus, for instance, retained material of an abortion, should be removed. The two forces are the virulence of the microorganism and the resistance of the individual." . . . "Differences of opinion result from the different attitudes of investigators. Some fear a decrease in the resistance of the patient, others an increase of the power of the exciting parasite. The author is convinced that the essence of virulence is the balance between the two powers; that of the host and that of the microorganism, but he regards the increase of virulence as a great danger, especially in febrile abortion. Waiting too long, one risks allowing the decaying tissue to increase the virulence of the streptococci to such a degree that, after penetrating into the blood, they cause a serious general infection. The penetration into the blood can scarcely be avoided, because it is favored by trivial noxae, such as restlessness of the patient, intestinal peristalsis, slackening of the contractions of the uterus due to the toxic paralysis, etc. Fearing this sudden (explosive) entrance of 'virulent' streptococci, the author recommends the early termination of an abortion."

Robert Kessler practices the expectant treatment and administers quinine.

Schwarz, in an article on The Conservative Drainage Treatment of Febrile Abortion, inserts narrow strips of gauze into the uterine cavity for drainage.

An interesting report from *Darnall*, of Atlantic City, on "Abortion," says, "At one extreme are the watchful waiters who advise letting the patient absolutely alone, expecting nature to expel every thing and relieve the patient. At the other are those who would curette at once every patient. I have never been able to get my consent to allow a patient to go on with a foul stinking mass of necrotic placental material remaining in the uterus from day to day, inviting septic infection, subinvolution of the uterus and possible destruction of the appendages. . . . In the severe cases the type of infection is usually a virulent streptococcus. Oftentimes the uterus will be found to contain nothing, but if there should be a mass of placenta present, is it good judgment to leave it there to act as a focus, to continue the flooding of the system with bacteria and poison the patient? To remove the mass often results in improving the condition of the patient, although sometimes the infection has progressed to such as extent that, in spite of anything that can be done, she will be overwhelmed by a general septicemia and die. . . . In the treatment of all abortions it is not so much what you do as how you do it. The sharp curette should never be used. A dull irrigating spoon, or the type of instrument devised by Hirst, of Philadelphia, may be used. There should be no attempt at scraping the endometrium. Only enough pressure should be used to dislodge the mass and bring it out. If the case be of the septic type, the

placenta should be gently picked out with forceps, or wiped out with a piece of gauze wrapped about the finger, or a dressing forcep. As little instrumentation as possible should be indulged in, and this applies even to dilating the cervix. The surface of the endometrium should then be wiped over with equal parts of iodine and carbolic acid, and a strip of iodoform gauze packed into the uterus. The method of Ill, of Newark, of packing the uterus with plain gauze saturated with 95 per cent alcohol, is also of value and gives good results."

Hannah considers septic cases of abortion serious conditions with which to contend, and that they require judgment equal to that of any grave disease. He says: "If the contents of the uterus can be removed without further injury and little or no shock to the patient, this may be considered good surgery; otherwise, it should not be attempted unless hemorrhage is sufficiently dangerous to demand it."

Tuttle writes "The treatment of septic abortion requires mature judgment. Those cases where infection has extended beyond the uterus and without evidence of retained necrotic placenta or membranes should be treated expectantly.

"Surgical treatment is difficult to standardize and no one method will apply equally to all cases."

Gelhorn favors radical treatment unless pelvic complications exist.

Novak writes "Febrile cases should be treated expectantly until several days after complete defervescence. The five day limit of Hillis is a safe one. If, at the expiration of this time, there is evidence to indicate that the abortion is still incomplete, the uterus should be emptied with the least trauma possible under the circumstances.

"Where abortion has been induced, operation should be put off as long as possible, and, if possible, it should be avoided altogether. This is all the more important where there are evidences of grave sepsis, usually streptococci, in which the septicemia should be treated, with temporary disregard of the condition in the uterus.

"Instrumental evacuation of the uterus should be avoided in the presence of such complications as broad ligament cellulitis or abscess, adnexitis, pelvic peritonitis, or pelvic abscess, although these complications may necessitate appropriate surgical treatment in themselves."

Stuart favors an expectant course.

It should be noted that these authorities are about evenly divided between the expectant and radical methods.

In many milder febrile cases, it may be entirely safe to use a blunt irrigating spoon in removing remains of the abortion.

We have always been of the opinion that it is harmful and often exceedingly dangerous to leave putrefying substances in the uterine cavity.

Years ago when very vigorous curettage was being done in septic cases, we were most doubtful of the wisdom of such a procedure. We have often seen such a curetting repeated on account of recurring chills and fever. This course was undoubtedly wrong.

On the other hand it is hard to bring ourselves to the point of leaving decomposing flesh in the uterine cavity, which not only furnishes an enormous amount of material for absorption, but in a very large proportion of cases blocks the uterine canal and prevents the exit of accumulated septic fluids from the cavity,—and especially, if these poisonous substances can be removed without doing damage to the uterine canal, without causing abrasion of the endometrium.

There is no class of cases in which it is more important to use good old fashioned common sense. Each case must be handled for itself. No rules can be laid down. In the severe case, the remains of the conception can be pulled away with the greatest possible gentleness with the aid of a smooth ring forcep, carefully dilating the cervix if necessary. The cavity of the uterus may then be washed out with an antiseptic solution, also with extreme gentleness, this latter being repeated every twelve hours if needed. If the condition of the patient will admit, elevation of the head of the bed is wise. Every helpful means should be used to build up the patient's strength and resistance, including especially intravenous glucose.

The consensus of opinion among the articles to which we have had access was that bacteriological examination was of little help, and that the infection in the severe cases was largely streptococcic. Post-mortem examination in some fatal cases showed small foci of pus in the uterine walls. The fear of dislodging these

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foci and sending them into the blood stream, and also the desire to allow the patient to build up an immunity against the infection seemed to influence some of them in favor of the expectant treatment.

The method which we advocate, and which we have practiced for years, is conservative, and we believe a harmless one. Our patients later on may require a simple curettage.

BIBLIOGRAPHY.

Clauser, F.: The Therapy of Febrile Abortion, *Zentralblatt fur Gynakologie*, 50:368, February 6, 1928.

Bovin, E.: Expectant Treatment in Abortion, *J. A. M. A.*, 87:590.

Paci, G.: Curettage in Febrile Abortion, *Clin. Obstet.*, 29:263, 1927.

Becker, C.: Zur Frage der Aborttherapie (Treatment of Abortion), *Munchener Medizinische Wochenschrift*, 72:1504, 1925.

Kustner, H.: The Virulence of the Streptococci and the Treatment of Febrile Abortion, *Zentralblatt fur Gynakologie*, 50:129, 1926.

Kessler, Robert: The Expectant Quinine Therapy in Septic Abortion, *Zentralblatt fur Gynakologie*, 50:3303, November 20, 1926.

Schwarz, G.: The Conservative Drainage Treatment of Febrile Abortion, *Zentralblatt fur Gynakologie*, 50:1251, May 8, 1926.

Darnall, Wm. Edgar: Abortion, *Surgical Clinics of North America*, 6, 1663, December, 1927.

Hannah, Calvin R.: Causes, Diagnosis and Treatment of Abortion, *Texas State Jour. Med.*, 22: 576, January, 1927.

Tuttle, Howard K.: Treatment of Abortion, *Surgery, Gynecology and Obstetrics*, 40:879, January, 1925.

Gellhorn, George: Treatment of Septic Abortion, *American Jour. Obstetrics and Gynecology*, 16: 547, October, 1928.

Novak, Emil: Treatment of Incomplete Early Abortion, *South. Med. Journal*, 21:317, April, 1928.

Stuart, P. E.: Diagnosis and Management of Abortion, *Jour. Iowa State Med. Society*, 403, September, 1926.

DISCUSSION.

DR. G. B. BYRD, Norfolk: Dr. Leigh seems to have gone so thoroughly into the literature and has covered so well the various aspects of the treatment of infected abortions that it really leaves very little except to thank him for his paper and commend him for the time he has spent, for the practical knowledge he has gained, and for looking into the literature.

There are just two points I wish to mention. One is the difference between infected abortion and incomplete abortion. I sometimes think in an incomplete abortion, when the products of conception are all removed early, you simply use prophylactic treatment to prevent what would be two or three days later a septic abortion.

I think most of the infected abortions you get are criminal abortions. In other words, the woman who aborts from some natural cause, without any manipulation, is less likely to be infected than if she has been tampered with by some unscrupulous person.

As to the question of what to do with them, I think if a woman has an abortion, unless you have actually seen the products of pregnancy yourself, she should be sent to the hospital, and if there is any question of the criminality of it, I think she should go or not be treated by you.

As to the question of what to do, I do not think you should ever use a sharp curette in an infected abortion. I think there is no harm in using a piece of gauze or anything that will pull away the products of the pregnancy, but do not use such force as to injure any of the mucous membrane that lines the uterus, because by doing so you would simply invite blood-stream infection.

Another thing I wish to mention is that in the post treatment or in the supportive treatment transfusion often plays a very important part and should be resorted to, not when the woman is in extremis, but when she still has some show and has some chance to build up and get well.

DR. LEWIS M. ALLEN, Winchester: In these cases it has been my experience that there is no bacteria at all, only a septic intoxication. Of course, those cases which are very serious and go on to death are, as Dr. Leigh said, usually streptococcus. It will give us a very good idea as to the best way of treating this uterus if we observe nature's method of healing. Nature always, in treating these infections, builds up a layer of small round-cell infiltration. A curette, or any other instrument that will take away any of the particles except those that belong to the products of conception, is apt to do harm, as Dr. Byrd called attention to, in opening up places of infection. To bring the matter to a conclusion, I personally believe that a curette is never indicated in these cases, but that the finger, the instrument that sometimes has an eye on it, should be introduced into the uterus and the inside of the uterus palpated. If there are products of conception present, these should be removed gently by the finger, if possible, or by the placental forceps; the uterus, packed with gauze soaked in alcohol, and the woman put back to bed with ice bags over the pelvis, and kept there for forty-eight hours after the fever has subsided.

GLYCOSURIA.*

By WALTER B. MARTIN, B. S., M. D., Norfolk, Va.

Before the advent of insulin and the more accurate methods of balancing the diabetic ration, the importance of accurate diagnosis in cases showing glucose in the urine was overshadowed by the greater problem of treatment. If a few casese were incorrectly diagnosed and failed to pursue a downward course to a lethal exit in the expected time, this was more likely to be set down to the vagaries of a disease whose treatment was so poorly understood than to a possible error in diagnosis. Such cases were often cited as examples of the danger of too positive a prognosis. With improvements in methods of treatment, accurate diagnosis has become of greater importance and an increasing number of patients are being found who show a glycosuria, but in whom the diagnosis of diabetes is in doubt or can definitely be ruled out. Certain cases

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of this type are here presented with some discussion of the question of differential diagnosis.

We may classify glycosuria briefly as follows:

A. Glycosuria without disturbance of sugar metabolism.

1. Constant—Renal glycosuria.
2. Intermittent—Cyclic renal glycosuria.

B. Glycosuria with evidence of disturbed sugar metabolism (Diabetes mellitus).

1. Constant—Diabetes mellitus without increased renal threshold.
2. Intermittent—Diabetes mellitus with high renal threshold.

In addition to the above, certain investigators have added a third group, namely, diabetes innocens, presenting certain characteristics of mild diabetes and certain of renal glycosuria. It is not clear on the basis of evidence so far advanced that we are justified in grouping these cases separately.

Renal glycosuria was formerly considered rare, the first case being reported in 1896 by Klempner. During the next twenty-two years only twenty-four cases were noted in the literature. With the general adoption of accurate methods of blood analysis and the greater frequency of blood sugar determinations, an increasing number of these cases have been reported. It is now generally conceded that renal glycosuria is a much more common condition than was previously supposed.

In renal glycosuria sugar is present in the urine with no disturbance of sugar metabolism. Sugar appears not from a failure of the body to adequately metabolize sugar and the consequent rise of blood sugar above the normal renal threshold, but because of the lowering of the kidney threshold below the normal blood sugar level. In an average individual we consider a fasting blood sugar of 90 to 110 mg. per 100 c.c. as normal. Following an ordinary meal this may rise to 140 to 160 mg. With most individuals it is necessary for the blood sugar to rise in the neighborhood of 180 mg. before it is excreted in detectable quantities by the kidneys. The level to which blood sugar must rise in the blood of an individual before it is excreted by the kidneys is that individual's renal threshold. Sugar may therefore appear in the urine either because of a rise of the blood sugar above the normal renal threshold or because of a lowering of the threshold below the normal blood sugar level. The diagnosis of renal glycosuria is based on the presence of a persistent glycosuria with normal or low blood sugar findings.

Case 76, A. J. M., age thirty-four, male, seen October 23, 1920. The patient was referred with a diagnosis of diabetes mellitus. He had consulted a physician in May, 1920, on account of abdominal pain. Sugar was found in the urine at that time and he was put on a restricted diet. Following this, the sugar cleared up and the pain gradually disappeared. In August the abdominal pain recurred and he consulted his physician, who again found sugar in his urine. During July and August he had lapsed from his diet. Treatment for one month failed to clear up the urinary sugar and he was referred to me for treatment. There was nothing of especial significance in his past history except an unusual number of acute infections. In addition to the usual exanthemata of childhood, he had had malaria, protracted jaundice, typhoid fever and influenza. His wife and two children were living and well. There was no family history of diabetes or other metabolic disease. Abstract of physical examination is as follows:

"Patient is a stockily built, muscular, well nourished young man; height, 66 inches; weight, 156 pounds. The skin is free from jaundice, scars or eruptions; no unusual pallor or sweating. The eyes react normally to light and accommodation. The teeth are worn on the crowns and poorly cared for, but appear sound. The tongue is slightly coated. There is no glandular enlargement. The chest is well formed and symmetrical. The lungs are clear throughout. The heart is slightly enlarged; the sounds are clear and normally transmitted; there are no murmurs. The pulse is regular in force and rhythm, rate 80. Blood pressure, 115/75. The abdomen is soft and relaxed. The liver edge is felt at the costal margin and the spleen cannot be palpated. There are no abdominal masses and no tenderness. The genitalia and the extremities are negative, and the deep muscle reflexes are present and normally active."

The urine, on first examination, was amber, clear, acid; specific gravity, 1020, and gave a positive reaction for sugar by the Benedict method. Acetone, albumin, and abnormal microscopical findings were absent. Blood

sugar determination showed 80 mg. per 100 c.c. of blood. The stool was negative for ova and parasites, and the Wassermann was negative. Blood examination showed 5,500,000 red blood cells, 9,000 white blood cells, with normal differential except that the percentage of polymorphonuclears was rather low (52.5). The possibility of some dehydration is suggested by the slight elevation of both the white and the red cells. The patient, before coming to see me, had been on a diabetic diet prescribed by the referring physician. He was told to go back on general diet. One week later his twenty-four hour specimen contained 1,100 c.c., with specific gravity of 1022. A strongly positive reaction was obtained for sugar and the fermentation test with yeast was positive. His urine at that time contained a trace of albumin and a few hyaline and finely granular casts. A fasting blood sugar, taken the same day, was 81 per 100 c.c. of blood. On the basis of this very low blood sugar concentration, after a week of general diet the patient was told that he did not have diabetes and that he could ignore the presence of sugar in his urine. He was seen again three years later (September, 1923). A freshly voided specimen of urine was positive for sugar and a fasting blood sugar was 114. A quantitative determination of sugar in the twenty-four hour specimen showed 67/100 per cent. He has not been back for further checkup, but I have heard from him recently and he is in good health and has developed no symptoms suggesting the presence of diabetes mellitus. This, then, is a case of renal glycosuria. With a blood sugar as low as 80 mg. per 100 c.c. he continued to secrete a small amount of sugar. This amount was not changed materially by changes in his diet. Sugar is known to have been in his urine since May, 1920—a period of nearly ten years—certainly a sufficiently long time for any latent diabetic tendency to have manifested itself.

Case No. 652. J. L. B., age twenty, male, seen February 23, 1923. This patient came in with a diagnosis of diabetes. He stated that sugar had been found in his urine four years before, during a routine examination of urine in a hospital prior to an appendix operation. Since then he had been under more or less constant treatment for diabetes. He asserted that one physician told him that his blood sugar was high. He had apparently cooperated very poorly with his physician, and although diets had been prescribed for him repeatedly, he had failed to follow them and had lapsed into all sorts of dietary indiscretions. He was fond of sweets and was accustomed to satisfying his appetite in this regard. The patient was an only child; his father was dead from an unknown cause; his mother was very nervous but otherwise well, and there was no history of diabetes on either side of his family. He had had diphtheria as a child and one subsequent attack of tonsillitis. He had been subject to rather frequent mild colds and his appendix had been removed four years prior to this time, following an acute attack. The patient was well developed and well nourished and showed no evident loss of weight. His general physical examination was entirely negative. It seemed hard to correlate a history of diabetes in a young man, beginning certainly four years before, at the age of sixteen, with his apparently good state of nutrition, especially in view of the fact that he had exerted no dietary restraint. His laboratory findings were interesting. The urine was acid, 1034 specific gravity, and contained 3.6 per cent sugar. Acetone and diacetic acid were negative. There was a trace of albumin, but no abnormal microscopical findings. A blood sugar taken in the middle of the morning was only 90 mg. per 100 c.c. The following day the blood sugar was checked again and found to be 86 mg. The Wassermann was negative, and the haemoglobin, red count, white count, and differential were normal. The patient was put on a balanced diabetic diet and told to report in five days. A twenty-four hour specimen at that time had a volume of 1064 c.c.; specific gravity, 1030; sugar, positive; acetone, slightly positive. His blood sugar had fallen to 64 mg. The patient complained of weakness and did not feel as well as he did before dieting. A voided specimen of urine collected at the time the last blood sugar was taken showed the presence of 3 per cent sugar. Thus, although on a strict diet, and with a blood sugar of 64 milligrams, this patient still excreted 3 per cent of sugar in his urine.

He was seen again over a year later (in March, 1924). His fasting blood sugar was then 122. The urine was strongly positive for sugar. On account of the increase in his fasting blood sugar from 90 to 122, it was thought best to determine his sugar tolerance. Ac-

cordingly, he was given 1½ grams of glucose per kilo of body weight, well dissolved in lemon juice, on a fasting stomach. The result was as follows:

Fasting	118 mg.
½ hour	136 mg.
1 hour	126 mg.
2 hours	114 mg.
3 hours	108 mg.

This patient came in again in January, 1927. His urine had a specific gravity of 1030 and contained 2.5 per cent of sugar. His fasting blood sugar could not be obtained, but the blood specimen taken thirty minutes after his mid-day meal contained 136 mg. of sugar. In July, 1929, his fasting blood sugar was 109 mg. per 100 c.c. During the seven years he has been under my observation this patient has excreted sugar in large amounts and has constantly maintained a low blood sugar. He is known to have had glycosuria for eleven years, and during this time has not shown the downward tendency so characteristic of untreated diabetes. On my advice he has practiced no dietary restriction except a moderate limitation of sweets.

I have presented two cases with normal or subnormal blood sugar and very low renal thresholds. They clearly belong in the group designated as renal glycsouria. It seems probable that there is every variation of the renal threshold from such low points to normal and above. There are certain cases that will ordinarily not show sugar, but whose blood sugar may rise sufficiently high after heavy carbohydrate intake to cause sugar to appear in the urine. This may occur in the cyclic renal glycosuria when the renal threshold is below the usual level but not as low as in the two cases just reported; or, it may occur in mild or early diabetes, with intermittent elevation of blood sugar above the normal renal threshhold. Both types of cases have, unfortunately, been grouped under the common name of alimentary glycosuria, although their significance is entirely different.

Case No. 2739, H. H. K., male, age thirty-four, seen September 14, 1925. Sugar had been found in his urine four years before. His general nutrition was good. Patient stated that sugar had been inconstantly present ever since he was nine years old. A specimen had recently been examined and he was told that it contained 3 per cent of sugar. Voided specimen on the day of examination showed no sugar. A twenty-four hour collection, amounting to 1,425 c.c., was also sugar free. His fasting blood sugar was 107. Two weeks later a glucose tolerance test showed the following figures:

Fasting	102 mg.
½ hour	127 mg.
1 hour	121 mg.
2 hours	103 mg.
3 hours	84 mg.

This curve is normal and indicates no depression of sugar tolerance. Blood sugar taken two hours after a full meal was 129, and urine voided at the same time was sugar free. This patient, however, had a definite history of repeated recurrences of sugar in his urine over a period of twenty-five years. Unfortunately I have not been able to keep him under observation.

Case No. 4062, H. C. L., male, age forty-seven, seen June 11, 1928. Sugar had been found in his urine one year before, in the course of a routine examination. Since then he had been on a restricted diet, without being able to remain sugar free. He had lost a little weight and complained of mild dizziness. His state of nutrition was good, and, except for a rather low blood pressure (105/70) and slight tenderness over McBurney's point, his physical examination was negative. There was moderate secondary anaemia (haemoglobin 76); Wassermann negative, urine negative for sugar and acid bodies, and his blood sugar was 100 mg. per 100 c.c. A few days later he was given the usual sugar tolerance test, the result being as follows:

Fasting	105 mg.
½ hour	140 mg.
1 hour	141 mg.
1½ hours	130 mg.
2 hours	109 mg.

Urine voided before the test was sugar free, while the specimen collected at the end of the two-hour period gave a positive Benedict test and fermented with yeast.

Both of these cases show sugar intermittently and both have a normal response to the sugar tolerance test. Evidence does not point to a disturbed sugar metabolism, but to a slight depression of their renal threshold, as a cause of the recurring glycosuria.

The next two cases are somewhat doubtful

but they probably fall into the group of mild diabetes.

Case No. 2661, F. G., age thirty-seven, seen July 15, 1926. She had been rejected for life insurance on account of glycosuria. A freshly voided specimen of urine showed a reducing substance which fermented with commercial yeast. The urine gave a positive reaction for diacetic acid. The fasting blood sugar was 115. The twenty-four hour collection of urine showed no sugar. The glucose tolerance test gave the following curve:

Fasting	105 mg.
½ hour	151 mg.
1 hour	150 mg.
2 hours	133 mg.
3 hours	92 mg.

This is a borderline curve; the peak is a high normal and the drop is slow. At three hours, however, the blood sugar is well below the fasting level. This patient seems to have a slightly lowered tolerance for sugar and if her pancreatic function is overstrained by dietary abuse she would probably develop definite diabetes.

Case No. 2868. E. E. E. Male, age thirty, seen November 12, 1926. Two weeks previously he had been rejected for life insurance on account of sugar in his urine. A freshly voided specimen was negative for sugar, and the blood sugar, taken during the mid-morning hours, was 104 mg. His glucose tolerance curve, however, was suggestive of lowered tolerance.

Fasting	103 mg.
½ hour	149 mg.
1 hour	140 mg.
2 hours	120 mg.
3 hours	120 mg.

The peak is rather high, and in three hours the blood sugar has not returned to the fasting level. This patient had been a heavy eater of sweets and it is probable that he has broken down his tolerance by dietary excesses. He has been kept under observation for three years. He has been allowed a general diet except for a restriction of sugar and a moderate limitation of carbohydrates and of the total diet. His fasting blood sugar over this period of time has ranged from 102 to 117.

The next two cases are introduced as examples of true diabetes, masked by an unusually high renal threshold.

Case No. 1387, A. K. H., male, age thirty-six, seen August 21, 1924. He came in on account of a slight elevation of blood pressure. He had had an insurance examination two and one-half years before and was told that he had a systolic blood pressure of 142. Following treatment by his family physician this dropped slightly. In January, 1924, he developed diphtheria, and subsequently his blood pressure rose to 170. At one time he was said to have shown a trace of sugar in his urine, but on many subsequent examinations no sugar was found. He thought the single occurrence of sugar was due to the excessive use of sweets. Patient felt perfectly well and was only concerned on account of increased blood pressure. His physical examination at that time was entirely negative except for blood pressure of 162/115. His tonsils had previously been removed; his teeth were in excellent condition; there was no evidence of sinus infection or other foci. The laboratory examinations showed a normal red blood count, haemoglobin, white count and differential. The Wassermann was negative. The urine showed specific gravity of 1024, with a trace of albumin and an occasional hyaline cast. His blood nitrogen was normal, and blood sugar taken two hours after breakfast was 135 mg. per 100 c.c. Stool examination showed many ova of the dwarf tapeworm. Patient was from out of town and there was no opportunity to carry out a sugar tolerance test. He was referred to his family physician for treatment and was not seen again until February 15, 1927. During the intervening two and one-half years he had remained well, with blood pressure ranging considerably lower than when first seen. About six months before his second upset he had contracted a gonococcus infection which had been treated and had apparently cleared up. Recently an examination of his urine had shown sugar, and on a number of subsequent examinations he had at times been sugar free and at other times had given a positive reaction. His physical examination on his return revealed nothing new except that the blood pressure was reduced to 138/90, as contrasted with 162/115 two and one-half years before. Three separate specimens of urine, voided at 7:30 A. M., 6:00 P. M. and 10:00 P. M., were examined. A trace of sugar was found in one specimen, but the other two were negative. Albumin and casts were absent in all three specimens, and the stool was

negative for parasites. The following day a sugar tolerance test was run, with the following result:

Fasting	153 mg.
½ hour	222 mg.
1 hour	283 mg.
2 hours	155 mg.
3 hours	94 mg.

The specimen of urine voided at the end of the three-hour period was negative. This is a rather typical diabetic curve, with a fasting blood sugar well above normal and a high, prolonged elevation. It is seen that he has a very high renal threshold, as, in spite of the height of the blood sugar, no sugar was excreted in the urine.

Case No. 3102, L. C., male, age thirty-seven, seen March 25, 1927. He came in on account of being told that he had sugar in his urine. He had lost weight over a considerable period of time and about two months before he had been told that he had sugar in a voided specimen of urine. He was put on a diet by his family physician and since that time had shown no sugar in any specimen. The patient owned a candy shop and was accustomed to eating an excessive amount of sweets and drinking large quantities of bottled drinks. His physical examination was entirely negative except for infected tonsils. Of three specimens of urine examined, two showed a slight sugar reaction and one was entirely negative. His glucose tolerance test showed the following:

Fasting	168 mg.
½ hour	260 mg.
1 hour	283 mg.
2 hours	219 mg.
3 hours	134 mg.

It is significant that although this patient is a definite diabetic, and that the level of the fasting blood sugar is high, he does not constantly excrete sugar in his urine. It would be quite easy, in a routine examination, to overlook the fact that he had diabetes. The morning specimen, so commonly examined, was the one that contained no sugar.

Case No. 1309, M. P. K., female, age thirty-two, seen June 25, 1924, complaining of diabetes. Sugar had been found in her urine the year before and she had been under treatment ever since. She had been losing weight and felt very badly at that time. The patient stated that under treatment the sugar in her urine disappeared and she shortly afterward returned to a general diet. In January, 1923, sugar was again found and had recurred from time to time ever since. The patient was a very intelligent woman, willing and capable of cooperating thoroughly in her treatment. She was, however, very much discouraged, because in spite of rigid attention to her diet she continued to show sugar. Her diet had been made more and more severe, in an effort to render her sugar free, and she had lost steadily in weight and strength. When first seen she weighed only 102 pounds. Her normal weight she considered to be 130 pounds. She was complaining of polyuria, thirst, loss of weight, and general weakness. There was no question in my mind, at first, that I was dealing with a case of true diabetes. A voided specimen, obtained the first day, showed no sugar or acid bodies. The blood sugar level was 136 mg., the specimen being taken about three hours after breakfast. Two days later a twenty-four hour specimen was also clear, and the fasting blood sugar was only 110 mg. Her diet was continuously increased over a period of months and the patient began to gain in weight and strength. On November 10, 1924, sugar appeared in her urine. Prior to this, eight separate observations of the urine and blood sugar had been made. Curiously enough, although sugar free, she at times showed a definite polyuria. The twenty-four hour output varied from 1,425 to 2,850 c.c., and specific gravity from 1004 to 1016. The fasting blood sugar during this time ranged from 110 to 129. From November, 1924, to January, 1930, twelve observations were made on this patient. The twenty-four hour output has varied from 1,400 to 2,375 c.c. In all but two of these specimens a reducing substance has been present, with a total output as high as 15 grams. The specific gravity has averaged a little higher and has ranged from 1010 to 1022. The fasting blood sugar has not shown an increase, but has actually averaged slightly lower. These figures have varied from 100 to 129. The average for eight specimens of blood taken when the twenty-four hour specimen of urine was sugar free is 118, while the average of seven observations made when the urine showed sugar is 112. Fermentation tests made on the reducing substance in the urine were positive.

The glucose tolerance test was not done at

first, as I felt that she was a true diabetic and that there might be some danger of breaking down her tolerance. After a long period of observation, during which her diet was steadily increased without causing any significant change in her fasting blood sugar, it seemed probable that she belonged in the renal group. When the test was undertaken, however, she responded in a manner that indicated definitely lowered tolerance for sugar. The figures were as follows:

Fasting	121 mg.
½ hour	158 mg.
1 hour	200 mg.
1½ hours	183 mg.
2 hours	147 mg.

She is apparently a mild diabetic, with a low renal threshold, and presents some of the characteristics of both types.

The nine cases reported may be classified into five groups, as follows:

1. Those that have a persistently low blood sugar but always show a considerable quantity of sugar in the urine. These belong definitely to the group of so-called renal diabetes, or renal glycosuria. Cases of this kind have been observed over a long period of years and have shown no evidence of passing over to the true diabetic type.

2. Those cases that have a normal blood sugar level and show a normal reaction to the glucose tolerance test, but have, from time to time, excreted a detectable quantity of sugar in the urine. These cases belong in the same category as the renal glycosuria cases, the only difference being that their renal threshold is higher than those in the first group.

3. Those cases which excrete sugar occasionally but who show a tendency to a high blood sugar curve in response to the glucose tolerance test. Some of these cases can be classified only after a long period of observation, and unless it is definitely certain that they are not diabetic, they should be kept under observation sufficiently long to clear up any doubt as to their classification.

4. Cases with definitely elevated renal thresholds. In this group the blood sugar may have to rise to a point much higher than that normally considered the renal threshold, before sugar is excreted. They are true diabetics and this may be overlooked, due to the fact that the high blood sugar is not necessarily associated with the excretion of sugar in the urine.

5. Cases which show some of the characteristics of both groups. They excrete sugar at a low renal threshold level but respond to the sugar tolerance test with a definitely elevated curve. The low threshold probably has a favorable effect, in that it prevents an undue accumulation of blood sugar and consequently lessens the demand on their pancreatic function.

201 *West Freemason Street.*

MALIGNANT TUMORS OF THE THYROID GLAND.

By CARRINGTON WILLIAMS, M. D., F. A. C. S.,
McGuire Clinic, Richmond, Va.

Report of Cases.

Case 1. A. G. P., female, age 56, married, was admitted to St. Luke's Hospital, July 8, 1927, complaining of goiter. There was no family history of goiter or cancer.

Eight years before admission she noticed a small enlargement of the thyroid, which had gradually increased to the present size. Examination revealed a well-developed and well nourished woman. The thyroid had a smooth, firm enlargement of the right lobe about the size of a lemon, which was freely movable. The basal metabolic rate was minus 18. At operation the single tumor was removed from

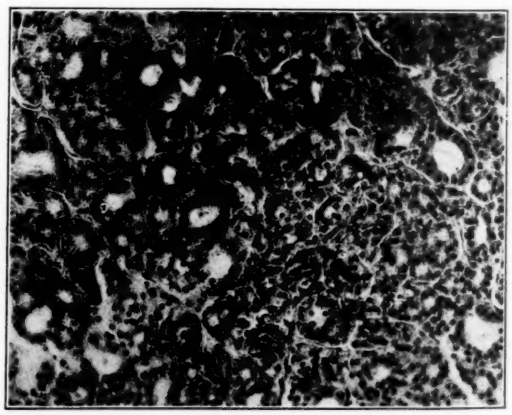

Fig. 1.—Adenocarcinoma of thyroid. Low power. Case 1.

the right lobe. The left lobe appeared normal. The pathological report was adenocarcinoma, low grade malignancy. She made an uneventful recovery and there has been no evidence of recurrence of the growth.

Case 2. L. C., female, age 52, married, was admitted to the Memorial Hospital on March 27, 1928, complaining of a lump in her neck. She had had a goiter for twenty-three years, which had during recent years remained the same size. One year ago she noticed a small lump on the left side of her neck which gradually increased in size until recently, when the growth has been rapid. There were no symptoms of pressure or of damage to the recurrent laryngeal nerve. Examination showed a well nourished elderly woman, with no essential abnormality except the neck. Here there was on the left side behind the sternomastoid muscle a smooth, soft, movable mass, about the size of a lemon. There was no apparent connection with the thyroid gland which was enlarged by a nodular mass in the left lobe about the size of an egg. X-ray examination of the chest was negative.

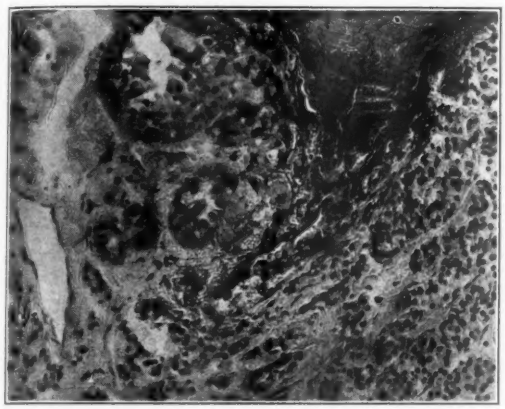

Fig. 2—Adenocarcinoma of thyroid. Low power. Case 2.

The mass in the left side of the neck was removed, along with a section of the external jugular vein, which was adherent to it. It was well encapsulated, soft and appeared to be thyroid tissue, although there was no connection with the thyroid gland. The pathological report was adenocarcinoma of the thyroid.

The patient refused further operation and left the hospital, but returned two months later for thyroidectomy. The entire left lobe containing the firm nodular growth and the major portion of the right lobe was removed. The pathological report was that this tissue was identical with the mass previously removed, that is adenocarcinoma of the thyroid.

Following operation, she was given X-ray treatment over the neck. Her general condition has remained good, although she has a small nodule, evidently a recurrence, in the region of the left lobe of the thyroid gland.

Case 3. E. W., colored, female, age 26, single, was admitted to St. Philip Hospital July 20, 1928, complaining of goiter. She had had an enlargement of the thyroid gland for about three years which had increased very slowly in size. She frequently had a sensation of pressure in the neck. She had not lost weight.

Examination revealed a well developed and nourished young negro woman. The thyroid gland was generally enlarged and nodular, more marked on the left side. It was very firm to pressure and moved with the trachea on swallowing. The basal metabolic rate was plus 12. At operation the gland was very firm and densely adherent to the trachea. The normal thyroid markings were absent and the whole mass appeared to be scar tissue. It was removed with great difficulty, small pieces being left adherent to the trachea. The pathological report was carcinoma of the thyroid, low grade malignancy. She has remained well since operation and there is no evidence of tumor, although it was not completely removed.

Case 4. E. R. F., female, age 22, single, entered St. Luke's Hospital July 15, 1927, complaining of goiter. The family history was negative for goiter, cancer and tuberculosis. She had had a nodular goiter for about two years, which began as a small nodule and gradually increased to the present size. Along with the growth of the gland it had become very hard. She said it increased in size at the time of the menstrual periods and at times of excitement. There has been no indication of pressure on the trachea nor damage to recurrent laryngeal nerve. She has not lost weight.

Examination showed a well developed and nourished young woman. The anterior chain of cervical lymph nodes was enlarged on each side. The thyroid gland was enlarged by multiple nodules, which were very hard; the gland was not fixed in position. The basal metabolic rate was plus 3.

At operation the major portion of both lobes, including all of the nodules, was removed and the patient made an uneventful recovery. The pathological report was adenocarcinoma, low

Fig. 3.—Gross appearance of tumor. Adenocarcinoma of thyroid. Case 4.

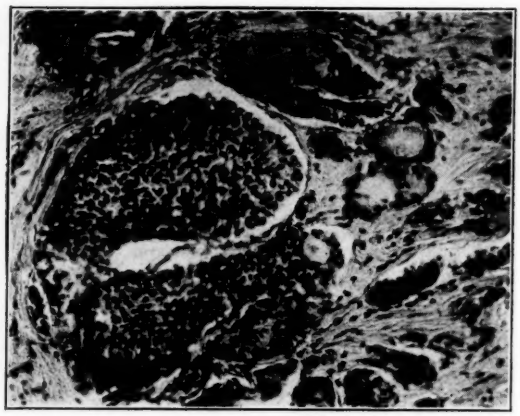

Fig. 4.—Adenocarcinoma of thyroid. Low power. Case 4.

grade malignancy. She remained well for two years, when the nodes in her neck became large and hard and her voice became very hoarse. Examination indicated a recurrence of the carcinoma. She was given intensive X-ray treatment of the neck with marked decrease in size of the glands and almost complete relief of the hoarseness. She is now in good general condition, almost five years after operation.

Case 5. W. G. S., male, age 40, married, was admitted to St. Luke's Hospital on August 6, 1929, complaining of goiter. There was no family history of goiter or cancer. Three months ago he noted tachycardia and nervousness and a little later enlargement of the thyroid gland. The nervousness and tachycardia were improved by iodine, but he had not been able to work. Examination revealed a well developed and nourished man. There was a discrete enlargement about the size of a lemon in the left lobe of the thyroid gland, soft and freely movable. There was no exophthalmos. The pulse rate was 65. A fine tremor of the extended fingers was present. The basal metabolic rate was zero.

At operation a single adenoma was found well encapsulated; this and the surrounding gland tissue were removed. The right lobe appeared normal and was not disturbed.

The pathological report was papillary adenocarcinoma of the thyroid, low grade malignancy. At this time, seven months after operation there has been no evidence of recurrence.

Case 6. V. P., female, age 57, single, was admitted to the Memorial Hospital on August 11, 1929, complaining of goiter, pain in neck and difficult breathing. She first noticed a small enlargement in the region of left lobe of the thyroid gland, about two years ago; it has gradually increased in size. During the last few weeks it has been painful and she has had a sensation of pressure in her neck, which at times has interfered with breath-

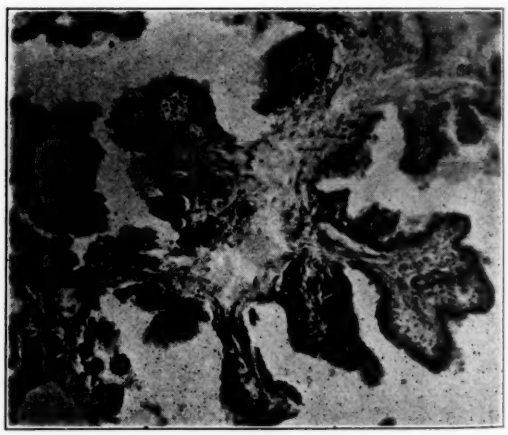

Fig. 5.—Papillary adenocarcinoma of thyroid. Low power. Case 5.

ing. She has lost fifteen pounds in weight. Examination revealed a well developed but poorly nourished elderly woman. The thyroid was enlarged in both lobes, the right lobe was

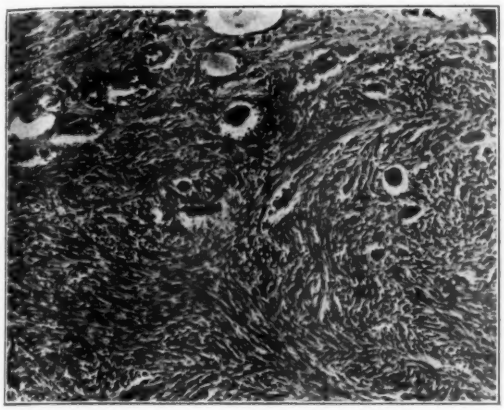

Fig. 6.—Sarcoma of thyroid. Low power. Case 6.

nodular but soft, the left lobe was about the size of an egg and very hard. The gland moved on swallowing. The basal metabolic rate was plus 4. X-ray examination of the chest was negative for metastasis. Laryngoscopic examination showed the vocal cords moving normally.

At operation the entire left lobe and the portion of the right containing the nodules was removed. The pathological report was spindle cell sarcoma of the thyroid and fetal adenoma. She recovered promptly from the operation but her general health did not improve. She was given X-ray treatment over the neck and upper thorax. She died two months after leaving the hospital of mediastinal metastases which were demonstrated by X-ray shortly before death.

Discussion

The pathological changes seen in the thyroid gland are very interesting and so varied that much confusion exists and opinions are by no means uniform. The hypertrophy and hyperplasia present in different types of disease and in different phases of the same disease make it easy to understand the many differences between students of this gland. The pathological changes differ too, I believe, in different parts of this country, and in this country are certainly quite unlike the changes seen in the goiter districts of Europe. Pemberton quotes figures which show that the general incidence of malignant thyroid tumors is 1:928 in the United States, 1:224 in Europe, and 1:93 in Berne, Switzerland. He also gives the statistics from the Mayo Clinic that of all adenomatous and colloid goiters 2.7 per cent are malignant. This is probably slightly higher than the general average. There is no real uniformity of opinion among pathologists, I have more than once added to my confusion by getting conflicting opinions from several eminent men.

Sarcoma of the thyroid is extremely rare, in fact Ewing doubts that there has ever been a case, believing that those reported were in truth epithelial tumors with spindle or round cells.

Carcinoma may diffusely involve the gland or part of the gland but much more frequently it is an encapsulated mass in its earlier stages. Later it may break through the capsule to involve the gland more extensively and also the surrounding structures, particularly the trachea. The adenocarcinoma and papillary adenocarcinoma arise in an existing adenomatous goiter, more frequently the fetal adenoma; they are always encapsulated at first and usually less malignant.

In Pemberton's series of malignant tumors 1 per cent were sarcoma, 25 per cent diffuse carcinoma, 39 per cent adenocarcinoma, 31 per cent papillary adenocarcinoma, and 4 per cent unclassified; 70 per cent of them were graded 1 or 2 on Broders' scale. This large percentage of tumors of low malignancy accounts for the more favorable outlook for these cases than is usually supposed.

The metastases from carcinoma of the thyroid are of unusual interest. The growth may proceed along the lymph channels in the usual fashion but it is characteristic of this tumor, as demonstrated by Allen Graham in 1924, to grow into the lumen of blood channels especially the veins and thereby be disseminated to any part of the body. As would be expected, the lungs have the largest number of metastatic growths; this is followed in order of frequency by bones, liver, kidneys, pleura, and brain. I recall seeing a woman who complained of severe pain in the right leg and tumor masses were found in the ilium and femur by X-ray examination; the thyroid showed a mass of stony hardness and was undoubtedly the origin of the disease. I once

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saw another woman with two large masses on her scalp thought to be sebaceous cysts; when they were removed, thyroid cancer was found but the thyroid gland appeared normal.

There are many bizarre combinations possible; there have been metastatic tumors appearing as normal thyroid from a gland obviously malignant, and malignant and apparently benign metastases have originated in a gland which appeared benign. I think it is generally conceded now that all these tumors are malignant.

There are no symptoms or signs in the early stages of a malignant tumor of the thyroid gland by which it may be distinguished from a simple nodular goiter. Later in its development the malignant tumor becomes very hard, may infiltrate the surrounding muscles and extend into the neighboring lymph nodes. At this stage the tumor is firmly fixed to the trachea and has therefore lost the mobility of the benign tumor. Between these two extremes we should suspect malignancy when the thyroid tumor is diffusely very firm or hard. The growth frequently invades the recurrent laryngeal nerve so that there is paralysis of one vocal cord or by its adhering to the trachea the patient may be hoarse without paralysis of the vocal cord. This was illustrated in Case 4.

The tumor rarely causes pain, but in Case 6 (sarcoma), pain was a prominent symptom.

Rapidity of growth is suggestive of a malignant tumor but was noted in only two of these six cases.

These patients generally are in good condition.

The diagnosis of a malignant tumor of the thyroid gland is often quite difficult, and when the signs are so well developed as to make the diagnosis easy the tumor has grown beyond the point where it may be completely removed. A large proportion of the tumors arise in a pre-existing nodular goiter, therefore a rapid growth of such a goiter without symptoms of hyperthyroidism should always be suggestive of malignancy. The tumor is usually quite hard and as it grows it tends to become fixed in position. Hoarseness from either damage to the nerve or pressure on the trachea is a prominent and frequent symptom. Loss of weight may be present as with any malignant tumor, but it is usually a late symptom. The basal metabolism is not affected by the malignant growth except where the growth is so extensive as to destroy the normal thyroid tissue.

There are a number of diseases of the thyroid gland which may be confused with malignant tumors. The calcification in old goiters may be so extensive as to simulate one, but can usually be separated. Tuberculosis of the fibrous type may exactly simulate a diffuse carcinoma. I have seen examples of each which were only determined by microscopic examination. Gumma is very rare; it is of course suggested by the positive Wassermann and could be proved by a therapeutic test, but much valuable time would be lost if it were a malignant tumor, so microscopic examination after biopsy is usually necessary. I had two such cases at the Memorial Hospital some years ago.

The prognosis depends on the extent and type of the tumor and the degree of malignancy. The diffuse carcinoma is liable to earlier metastasis on account of the rich lymph and blood vessel supply; yet in Case 3, which was of this type, the tumor had invaded the whole gland and was adherent to the trachea but was of low grade malignancy and has shown no evidence of local growth nor metastasis in spite of incomplete removal.

The outlook for the patient with the malignant adenoma and papillary adenocarcinoma is better. These growths are well encapsulated and cut off from lymph channels though they may spread through the veins to other parts. Cases 1 and 5 were of this type without invasion of the capsule and they will probably remain well. Cases 4 and 2 were also of this type, but in both the growth had extended through the capsule and both have local recurrence.

In sarcoma the duration of life is short, the longest life reported after diagnosis being 17 months (Ewing). Case 6 was of this type and she died two months after operation.

In considering the treatment of malignant tumors of the thyroid, we should remember that a very large percentage of these tumors arise in pre-existing adenomas. When the two per cent liability to malignancy is added to the possibility of thyrotoxicosis and the growth of the goiter to large size, there is certainly evidence enough to sustain the rule that all nodular goiters should be removed. While it is more favorable to the patient to have

the tumor removed before the diagnostic signs are present, the condition is not a hopeless one, even when the disease is well advanced, because the tumor may be of low malignancy and be kept under control for years and even disappear after incomplete removal and X-ray treatment. When it is possible, the tumor should be entirely removed. Fortunately, these tumors are usually unilateral, so that the posterior portion of the opposite side containing sufficient thyroid and parathyroid gland to maintain normal life can be left alone. On the other hand, if the involvement is bilateral the gland should be completely removed and life maintained by administration of the glandular extracts.

When the cervical lymph nodes are involved, the condition is usually inoperable, but in some instances removal of the thyroid and involved cervical nodes has been done with surprising success. Following operation very thorough X-ray treatment is advised. This is done regardless of the possibility of hypothyroidism. The inoperable cases should be treated by radium or X-ray and will be considerably relieved. It is sometimes necessary to remove a portion of the tumor to relieve pressure on the trachea.

BRONCHIECTASIS.*

By PAUL F. WHITAKER, M. D., F. A. C. P., Kinston, N. C.

According to McRae, cases of bronchiectasis are now more often recognized, or the disease has become more frequent. The former statement is mostly likely true, for, with the advent of bronchoscopy, renewed interest has been stimulated in the diagnosis and treatment of tracheo-bronchial and pulmonary conditions; and the common clinical teaching that bronchiectasis is relatively uncommon is proving to be a mistake. To my colleague, Dr. Peery, after his recent course in Philadelphia, goes the credit for stimulating our interest at the Kinston Clinic in bronchiectasis, and making us more cognizant of the fairly common occurrence of this condition.

Etiology and Mechanism of Production

In considering the etiology of bronchiectasis numerous factors must be taken into consideration. It is practically always a secondary affection and may be traced to some preceding disease of the bronchi, lungs, and pleura, and, in the light of recent work, to disease of the nasal accessory sinuses. Among the chief affections that may be etiological factors in its production are sinus disease, measles, whooping cough, scarlet fever, influenza, acute and chronic bronchitis, lobar or broncho-pneumonia, foreign body in the tracheo-bronchial tree, stenosis of a bronchus, either by compression from without, as by a tumor, or a growth in the wall, as in syphilis; tuberculosis, fibrosis of the lungs, inflammations of the pleura, compression of the lungs by either serous or purulent effusions, lung abscess, and long exposure to organic dusts. It may in rare instances be a congenital affection. As an etiologic factor sinus disease demands more than passing mention. It is common clinical observation that chronic bronchitis is often associated with, or even preceded by, disease of the nasal accessory sinuses, and that treatment of the sinusitis exerts a favorable influence on the bronchitis. The workers at the Jackson Clinic, notably Clerf, have called attention to a large series of cases in which sinusitis and bronchitis are associated. Granting that bronchitis is one of the chief causative factors in bronchiectasis, and that bronchitis is often etiologically associated with sinus disease, it is logical to assume that bronchiectasis must be closely allied etiologically with sinusitis. Mullin, in experimental work on animals, has established a direct lymphatic route between the para-nasal sinuses and the bronchi and the lungs, and concluded that infection may take place through this lymphatic route, or through inhalation of infectious material escaping from the sinuses into the nose.

The mechanism of the establishment of bronchiectasis may be briefly summed up as follows: It may be brought about, intrinsically, by a condition acting directly through a bronchus or, extrinsically, by a cause external to a bronchus. Chronic bronchitis may be used as an example of an intrinsic cause. The long standing inflammatory process tends to weaken the bronchial wall, and, as the result of prolonged and severe coughing, the weakened wall is unable to resist the pressure of air and hence dilates. Another factor is the mechanical plugging of the bronchi by catarrhal secretion. A pleural effusion may be used as an example of an extrinsic cause of bronchiectasis. It mechanically causes a compres-

*From Medical Department, Kinston Clinic.

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sion of the lung, and, if allowed to remain, a connective tissue proliferation occurs in the collapsed lung. This deprives the bronchi of their normal support, and the distending force of the cough, acting on bronchi deprived of their normal support, results in dilatation.

Anatomy

Anatomically, bronchiectasis may be unilateral or bilateral. It may involve one lobe or several lobes. There are two types of dilatation, the cylindrical usually involving the larger bronchi, and the sacculated more often involving the terminal bronchioles. A combination of the two types may occur in a single case. The lower lobes are most commonly involved, particularly in the non-tuberculous type. Apical bronchiectasis, however, occurs and is fairly common in the tuberculous form. Changes in the lung tissue around the affected bronchi naturally occur. These may be briefly stated as follows: The surrounding tissue is either slightly condensed by pressure, hardened by chronic pneumonia, rarefied by emphysema, or perfectly natural.

Changes in other organs take place. Dilatation of the right heart may occur as the result of obstruction in the pulmonary circulation. Abscess of the brain frequently has its origin in bronchiectasis, and changes in the liver, kidneys, and joints may result from toxic absorption. Clubbing of the fingers and toes is seen in the most extreme form in bronchiectasis.

Symptoms

In the early cases the symptoms are often masked with the disease acting as an etiological factor, and the presence of bronchiectasis may not be suspected. In a small proportion of cases the diagnosis can be made from two symptoms, namely, a paroxysmal cough, which may occur from two to three times a day, and the expectoration of large quantities of purulent sputum, which may or may not be fetid. Coughing paroxysms are most marked in the morning, and again at night, when the patient lies down. Change of position will often produce the cough. The cough may be easily productive or the sputum may be raised with difficulty. When the sputum is placed in a vessel, it separates into a thick granular layer below, with a thin mucoid layer above. The mucoid layer is capped by a brownish froth. Haemoptysis may or may not occur. As the disease progresses, dyspnea and cyanosis occur as the result of failing circulation, and in the advanced cases there is marked clubbing of the fingers and toes. In spite of the constant stagnation of septic material in the bronchi, constitutional symptoms are relatively uncommon. One of our moderately advanced cases, however, had frequent attacks of hyperpyrexia with cough, chills and profuse sweats, dating back to an attack of influenza five years before. Basal physical signs in a quiescent period led us to suspect bronchiectasis, which was confirmed by X-ray after bronchoscopic instillation of lipiodol.

Physical Signs

The associated conditions are so varied that the signs naturally vary greatly, and the signs on inspection, palpation, and percussion are influenced by these factors. Dilatation near the surface yields a tympanitic note, but the signs may vary as the cavity is empty or filled with secretion. On auscultation, practically every variety of rale may be heard. In diffuse early cases they have an intense crackling quality. If the bronchiectasis is superficial, then cavernous breathing may be heard. The main point to be remembered is that the physical signs usually occur at the base of the lungs.

X-Ray

The characteristic picture in a well advanced case is the extensive thickening of the lung markings along the course of the larger bronchi, which is usually seen to radiate from the hilum to the base; enlargement of the hilum glands, and the presence of increased areas of density in the lung fields near the bronchi. There may be considerable difference in the appearance of the film before and after evacuation of the cavities. Emphysema is usually present in long standing cases. In early cases the diagnosis is very difficult without the injection of lipiodol into the bronchi. Direct inspection through the bronchoscope in the hands of an experienced observer yields signs helpful in making a diagnosis.

Diagnosis

Bronchiectasis must first be differentiated from tuberculosis. The main points of differentiation are that, in the former, there is a long history of cough and expectoration, which may last for years, the localization of signs in the lower half of the chest, and the

absence of tubercle bacilli in the frankly purulent sputum. Clubbing of the fingers is comparatively rare in tuberculosis, but practically constant in bronchiectasis.

Chronic bronchitis usually is associated with bronchiectasis in some degree, and the reverse is also true. X-ray after injection of lipiodol will serve to differentiate chronic bronchitis from bronchiectasis.

Abscess of the Lung: While bronchiectasis is a chronic condition, pulmonary abscess is a fairly acute one. In the majority of cases the patient is acutely ill, or has recently recovered from an acute illness. The characteristic feature in abscess of the lung proximal to a bronchus is the sudden expectoration of a large quantity of muco-purulent material with a peculiar sweetish odor. This odor is particularly characteristic. In cases of small chronic abscess the distinction is difficult. The use of the X-ray and diagnostic puncture of the chest is here indicated, and, as abscess of the lung is cured by proper drainage, exploratory operation may be justified.

Loculated Empyema: An encysted empyema, especially when situated between the lobes of the lung, may rupture into a bronchus. Under these conditions, it is essentially the same as pulmonary abscess and the same methods of differentiation should be used.

Pulmonary gangree is usually sudden in onset, and may be one of the sequels of pulmonary infarct, tuberculosis, broncho-pneumonia, or spirochetal bronchitis. If gangrene occurs in bronchitis of long standing, the two may be very difficult to differentiate. The presence of elastic tissue in the sputum would be in favor of gangrene.

Treatment

A survey of the literature reveals a multiplicity of measures recommended in the treatment of bronchiectasis, ranging from simple postural drainage to lobectomy and thoracoplasty. The treatment, both medical and surgical, is, as a whole, unsatisfactory. In the cases that we have under observation, we are following the principles suggested by Burrell, using the simpler measures first. The patient is placed on five drops of creosote three times daily, and taught how to practice postural drainage. All foci of infection, particularly in the nasal accessory sinuses, are removed, and every effort made to improve the patient's general health by tonics, sun baths, violet ray, and cod liver oil.

Autogenous vaccines are of value and should be given. Bronchoscopic drainage is helpful and should be carried out whenever possible. It certainly makes the patient more comfortable. The cavities usually fill up again, but cases have been recorded where eventually the cavities have become dry and the improvement permanent. Many patients have led a fairly comfortable life on the above regime. With the surgical treatment of bronchiectasis I have had no personal experience. The surgical measures recommended are numerous, including artificial pneumothorax phrenic evulsion, thoracoplasty, pneumolysis, incision and drainage, cauterization and lobectomy. According to Burrell, he has had the experience of having some of his patients go through with as many as five of these procedures, and then have to be content with simple postural drainage.

From this summary of therapeutic measures used in the treatment of this condition, it can be seen that, as in many other conditions, it is more easy to prevent bronchiectasis than to treat it. Careful handling of diseases acting as etiologic factors, and, above all, the successful interpretation of the causes, together with the treatment of chronic cough, will largely prevent the occurrence of this condition.

Summary and Conclusion

1. Bronchiectasis is of fairly common occurrence, and the medical man should keep it constantly in mind in differential diagnosis of chest conditions.

2. Numerous conditions are etiologic factors in its production, but, in the light of recent knowledge and experimental work, sinus disease is probably the most frequent. Foreign bodies, however, should always be considered.

3. Careful analysis of the history, symptoms, and physical signs, together with X-ray, bronchoscopy, and intra-tracheal insufflation of lipiodol, should be done before arriving at a diagnosis.

4. Bronchiectasis is more easily prevented than treated, and every case of chronic cough should be exhaustively studied and treated. In the established cases, simple measures, such as creosote and posture, should be given thorough trial before more radical measures are resorted to.

5. A well established case of bronchiecta-

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sis merits, and should receive the cooperative judgment and treatment of the internist, the thoracic surgeon, the bronchoscopist, and the roentgenologist.

BIBLIOGRAPHY.

1. Index of Differential Diagnosis—Herbert French: Fourth Edition.
2. Diseases of the Chest and Principles of Physical Diagnosis—Norris and Landis: Third Edition.
3. Osler's Principles and Practice of Medicine—McCrae: Tenth Edition.
4. Tice's Practice of Medicine: Volume II.
5. On the Use of Lipiodol in Relation to Thoracic Surgery—By Carl A. Hedblom, M. D., and Jerome R. Head, M. D., of Chicago, Ill.: *Annals of Surgery*, February, 1927.
6. Bronchiectasis—By Sir Lancelot, S. T. Burrell, M. D., Camb., F. R. C. P., London: Proceedings Interstate Post-Graduate Medical Assembly of North America.
7. Bronchiectasis Associated with Disease of the Nasal Accessory Sinuses—Louis H. Clerf, M. D.: *Philadelphia Archives of Oto-Laryngology*, July, 1927.
8. Suppurative Deseases of the Lung; Bronchoscopic Drainage as an Aid to Treatment by the Internist—Chevalier Jackson, M. D., Sc. D., F. A. C. S., Philadelphia, Pa.: Transaction of the American Academy of Ophthalmology and Oto-Laryngology, 1923.

POLYCYTHEMIA—A BRIEF REVIEW OF THE LITERATURE WITH A CASE REPORT.

By HAROLD W. POTTER, M. D., Newport News, Va.

Two types of polycythemia are described. Relative and absolute. The first sometimes means only a blood concentration as that resulting from loss of fluid. It may also occur as a result of stasis and concentration of red cells in the blood channels. The second type is erythremia, considered by some a distinct clinical entity, and characterized by a striking and excessive increase in erythrocytes and by splenic enlargement which is often extreme.

Osler[1] states that Vaquez' disease is probably not a definite specific disease but that it is a syndrome with varied etiology and pathology. There is one type associated with syphilis of the pulmonary arteries in which the etiology is definitely luetic. This type of erythremia is known as "Ayerza's Disease or Syndrome."

In the relative type we find polycythemia in persons residing in high altitudes or aviators, in stasis of blood in congenital heart lesions and emphysema of the lungs.

In the types due to high altitudes it is easily seen that the blood concentration here is an adjustment by nature to meet the need for concentration called for by the rareness of the air and dyspnea.

In cases due to stasis in organic heart lesions, emphysema and stenosis, the pathology calling for concentration is easily understood.

PATHOLOGY: In the absolute type the pathology is apparent chiefly in the bone marrow. Congestion, a deep red color and bloodiness of the marrow is seen. The spleen is seen to be enlarged but not structurally changed. Naegeli has emphasized the dark red bone marrow in polycythemia vera. Halir[2] reporting the autopsy of a case, found multiple scars after infarct of the spleen and believes that the loss of function ensuing was an etiologic factor in this case.

ETIOLOGY: The etiology of the relative type is physiological in cases of aviators or persons in high altitudes, or mechanical in cases of congenital heart disease, stasis and emphysema.

The etiology of the polycythemia vera is not known. Some cases are apparently familial. Hottenger[3] in a paper on "Polycythemia in Childhood," describes a family in which six of thirteen children had polycythemia, one of the normal children was used as a control and the cases followed for a number of years. Intercurrent tuberculosis and dysentery was the cause of death in most of these children. The real etiological factor is not known. But some pathological condition of the bone marrow is undoubtedly the direct cause.

SYMPTOMATOLOGY: The relative type is characterized by feeling of fulness in the head, nose bleed and headaches; often nausea, vomiting and dizziness. The absolute type is insidious in onset and the first symptom may be redness of the mucous membranes and a red cyanosis of the skin. Laziness, malaise and sometimes real exhaustion develop rapidly. Nose bleed is rare in this type. Dyspnea is usually present; fever not present. Digestive upsets are common. The spleen is found markedly enlarged. Liver is usually enlarged. Hottenger in his report, mentioned previously in this article, found that in 4 cases the basal metabolism was increased as was the CO_2 combining power. Normal values were found for the oxygen fixing capacity of the hemoglobin and the carbon dioxide content of the

1. Osler, Principles & Practice of Medicine, page 251, "Erythremia."

2. Halir, Otto, The Erythrocytoses. **Wien. Arch. F. Inn. Med.** 13—407-416, 1927.

3. Hottenger, A. Polycythemia in Childhood—Ztschr. F. **Kinderhlk**, 44:61-86, 1927.

plasma. Also the blood sugar, liver and kidney function tests gave normal values.

THE BLOOD: In the relative type the total count is increased markedly or excessively. The white count may be increased also. The hemoglobin may be increased or normal. In cases of polycythemia vera the highest count reported is 14,800,000 per cubic millimeter.

Halir's case had a red count of 9,020,000 with a Sahli hemoglobin of 125, color index .69. The white count reached 18,000 with a normal differential count.

Hottenger's reported cases ran: 12,740,000—Hbg. 135 per cent; 10,900,000—Hbg. 177 per cent; 11,390,000—Hbg. 150 per cent; 13,600,000—Hbg. 185 per cent; 13,200,000—Hbg. 179 per cent; 12,000,000—Hbg. 132 per cent. Blood pressure was normal in each case.

In the two cases reported from personal observation by Hottenger, both in children, one had a red count of 6,500,000 per cubic m.m. with 120 per cent Hbg. and 7,000 white cells. The second had a red count of 5,700,000—103 Hbg. 9,000 white cells.

Hyperglobulia seems to be the rule in this symptom complex. A few nucleated reds may be found in this disease and occasionally myelocytes. Anisocytosis and polychromatophilia may be seen. The coagulation time is variable. The color index low and blood platelets variable. The volume of blood put out by the heart is apparently not increased.

DIAGNOSIS: Diagnosis depends on the patient's appearance, enlargement of the spleen and the blood picture. It may be impossible to differentiate the relative and absolute types in some cases in the absence of congenital heart lesions, history of altitude or emphysema.

PROGNOSIS: In the relative type, the prognosis depends on the cause. It is good in the altitude types. In the cases due to emphysema or congenital heart it depends on the extent of involvement of the structures attacked.

In the absolute type the prognosis is bad for cure. The condition is slower, remissions may be long, but are even then only partial. Intercurrent disease usually causes the patient's death rather than the disease itself.

Greene[4] cites a case still living nine years after the diagnosis was made and still able to work.

TREATMENT: All authors agree that splenectomy should not be attempted on the absolute type.

In the relative type symptomatic treatment with change of altitude, relief from flying duties in aviators, cardiac supportives in the congenital heart cases, are the lines to be followed. Phlebotomy is reported to have relieved some cases. In the absolute type authors vary in their results with roentgenization and radium. Osler and C. L. Greene report that it is of no particular value. Halir in his case report states that roentgen irradiation always brought about improvement, which lasted once nine months.

The thighs front and back and each forearm were irradiated, 36H being given each time in two separate treatments. Later the ribs and sternum were irradiated. Subcutaneous injections of physostigmine salicylate have been used, the dose being .001 every other day. Little result is reported.

Benzol is of value but great care must be employed in its use. Impotency, which is very troublesome to the patient, is frequently the result. Hottenger used phenylhydrazin in his case and advises against its use on account of the accumulative effect.

Benzol when used is used in doses of 1 c.c. three times a day increasing to 4 c.c. The blood count is used as a guide.

A CASE REPORT

The case reported here is one which after study of the literature does not seem to fall into either of the two classifications described heretofore. However, it probably belongs under the relative group although no etiological factor has been determined. It demonstrates the difficulty encountered in trying to classify the polycythemias.

The patient is a white female aged twenty-seven years. Occupation trained nurse. Married, has one child, nationality Irish. Residing at time of onset in Paris, France.

Family history: Revealed no history of polycythemia in any of the family. Mother, one brother and sister living and well. Father died of pneumonia.

Previous personal history: Usual childhood diseases with no sequelae. No other illness. Never lived in high altitude.

Present illness: The onset occurred while patient was in Brittany in September, 1925. She was then twenty-three years of age. She

4. Greene, C. L. Tice's Practice of Medicine, Vol. VI, Chap. IV, page 865.

suffered from headaches, faint feelings and vomiting. Shortly after the onset the patient had a severe spell of light headedness and lost consciousness for several hours. Following this she had little trouble for a month, when a sensation of palpitation of her heart began to trouble her. She again became faint and dizzy at frequent intervals. She had another fainting spell, losing consciousness for several hours. She had returned to Paris and was at the Ameican Hospital at this time and was given bed rest for several days. She noted that she was losing weight. She was shortly thereafter admitted to the hospital and a blood count was done as part of the routine and the red count was 9,000,000 red cells per cubic m.m. The white count 12,000, Hbg. 95 per cent. She noticed some blueness of her hands but no red flush.

Red counts were done every other day for a month and ranged from 9,000,000 to 10,500,000. The white count ranged from 12,000 to 17,000.

Physical Examination: Head and neck—negative. Chest (by Dr. Armand De Lille) showed no evidence of pathology. X-ray of chest—negative. Heart sounds of good quality rate and rhythm, no murmurs. No sign of congenital heart lesions. Abdomen and extremities—negative. No enlargement of spleen. Diagnosis from physical examination——negative.

Neurological examination by Dr. Claude—negative, except for instability of vagus nervous system. Patient had lost twenty pounds since the onset of the symptoms. Bordet Wassermann—negative. Spinal Puncture—Fluid normal. From the blood count a diagnosis of polycythemia, type undetermined, was made.

Treatment used was bed rest, bellafoline and gardenal in shall doses.

Progress of Case: The patient improved and left the hospital for a vacation on the Riviera. The red count was at this time 8,000,000 per cubic m.m. She stayed in the south of France for five months. On her return to the hospital her red count was 6,500,000 per cubic m.m. It remained at this number for some months and then dropped to 5,000,000.

Since 1926 the patient has not had any symptoms referable to the illness described above. In March, 1929, she was operated upon for chronic appendicitis. The red count at this time was 4,800,000 with a white count of 14,000. In August, 1929, she was delivered of a normal male infant. Following this she had a pyelitis and a blood count was done. The red count was 4,850,000 and the white count 7,000. No fainting, dizziness nor vomiting has occurred since 1926.

Comment

This case of polycythemia does not appear to belong to the class known as polycythemia vera in as much as the spleen was not enlarged and the dusky red color was absent. The period of freedom of symptoms three years seems rather long for a remission. This would not be suggestive of Vaquez' disease.

On the other hand, no etiological factor could be determined in this case, yet it cleared up under symptomatic treatment and so far has not recurred.

This case is of interest because it does not appear to fall under either of the types described in the literature.

70 33*rd Street.*

PERINEORRHAPHY WITH LONGITUDINAL SUTURES.

By M. PIERCE RUCKER, M. D., Richmond, Va.

The tendency in immediate perineorrhaphies is toward shallow perinei, the extreme of which is the so-called *dash-board perineum.* The reason for this is twofold: (1) often only the outer part of the wound is repaired; (2) the perineal body is stretched to almost paper thinness before it tears or before an episiotomy is done. When it is repaired with transverse sutures, this thinned out condition of the structure is preserved to a more or less extent.

With interrupted sutures, one never knows just how tightly or how loosely to tie them. In other words, it is hard to know how much to allow for the swelling that is sure to occur. If the sutures are tied too loosely, one does not get primary union, and if they are tied too snugly, they cut and pain the patient when the tissues swell. Knots and tight sutures are especially objectionable in deep second degree and in third degree lacerations.

The longitudinal suture of silk-worm gut obviates these difficulties. There are no knots. The sutures accommodate themselves to the

swelling as it occurs. There is no cutting of the tissue by the suture. The patient is much more comfortable, and the perineum afterwards is thick and firm.

The method of placing the sutures can best be followed in repairing a median episiotomy. The median episiotomy leaves a V-shaped furrow that is deepest at the muco-cutaneous junction; the furrow tapers off to nothing in the vagina and on the skin surface just above the rectum. The first suture is started high up in the vagina above the upper end of the wound. It is carried from side to side of the trough as a running suture, co-apting the deeper structures, i. e., levator fibres, and brought out through the skin to one side of the lower end of the wound. The next suture, parallel to the first, brings together the deep fascia. In this way, the perineum is built up layer by layer. The last suture is a submucous and subcutaneous one. The upper ends of the four or five sutures are passed through a perforated shot, and the shot is mashed tight upon these some one-quarter of an inch from the mucous membrane. The sutures are cut flush with the upper edge of the shot. In the same way, the outer ends are secured about one-half an inch from the skin surface.

The outer portions of the sutures are clipped close to the skin on the fourth or fifth day, after first painting them and the adjacent skin with tincture of iodine. The remaining portions of the sutures are removed at the postpartum examination. Lateral episiotomies and lacerations are repaired in the same manner, except that sometimes I use No. 2 chromic catgut instead of silk-worm gut for the deeper sutures in repairing a complicated laceration for fear of "locking" them.

Since I have adopted this technic, my patients have complained less of their stitches. The results have been uniformly excellent. I am of the opinion that the longitudinal sutures "hold" better. This was strikingly illustrated in a recent case.

The patient came into the hospital after the membranes had ruptured, with a high fever. There was uterine inertia. After twenty-four hours, I did a difficult delivery, and there was a third degree laceration. Her temperature then was 104. I repaired the perineum in accordance with the technic recently described by Royston.* On the seventh day, the patient had a stool and the sutures gave away. The next day, I cleaned up the wound with mercurochrome and repaired it with longitudinal sutures of silk-worm gut, with a perfect result.

*Roysten, G. D.: Repair of Complete Perineal Laceration. Am. J. Obst. & Gynec., 19:185, 1930.

THE USES AND ABUSES OF MEDICAL AND SURGICAL DIATHERMY IN GYNECOLOGY.*

By EUGENE L. LOWENBERG, B. S., M. D., Norfolk, Va.

Diathermy or high frequency refers to an oscillating current which flows in alternating directions, much more rapidly than the commercial, or low frequency currents. The name "diathermy" means electro-thermal penetration or "through heating." It is applied to high frequency currents, because it is their peculiar property to cause marked elevation of temperature in tissues through which they pass.

There is nothing new or unusual about the use of high-frequency currents in medicine. Tesla, in 1891, first suggested their use to produce heat within tissue, and from that time to 1910 much was written on the subject. But only recently have we come to realize that it holds a very definite place in our scientific armamentarium. The apparatus consists of a transformer, a spark gap, and a condenser which step up the voltage, and greatly increase the frequency of the commercial current. The form of current thus produced is similar to that used in wireless telegraphy. In the latter, the air offers but slight resistance to the current, but when the current is introduced into the human body, the resistance offered dampens the rapidly oscillating impulses, converting their energy into heat. Eberhart's Physiotherapy Chart (Fig. 1) illustrates the relation of diathermy to the other electrotherapeutic modalities. When a high frequency current is passed between a large indifferent electrode, usually a piece of block tin, and a small or point electrode, the intense heat causes tissue destruction, and this is referred to as "surgical diathermy." By varying the proportion of voltage to amperage, three forms of surgical diathermy are developed—the Oudin, or high voltage and low amperage current producing the so-called "cold spark" for desiccation; the Tesla, or medium voltage, medium amperage current, producing a spark which burns and is used in fulguration; and the D'Arsonval, or low volt-

*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

PHYSIOTHERAPY CHART
MECHANICAL VIBRATIONS

Galvanism	Chemical effect
Faradism, Sinusoidal	Mechanical effect
Static, Wireless, Diathermy	Thru heat
Infra-Red	Radiant heat
Red, Orange, Yellow, Blue, Indigo, Violet	Light
Ultra Violet, Radium, X-Ray	Chemical effect

The Modalities are arranged according to wave length from above downward.

(Modified from Eberhart.)

Fig. 1

age, high amperage, producing the greatest heat possible and used to coagulate or cook tissue. Regulating the apparatus for these three forms of surgical diathermy is not difficult. The ammeter indicates the amperage and the spark gaps control the voltage. The length of the spark, its hotness and coldness, can be tested on any piece of metal in the circuit, such as the stirrups of the table. A foot switch facilitates the rapid opening and closing of the circuit. A spark of about 1/8 of an inch is usually used. Practice may be gotten on a piece of beef to determine the extent of destruction for a given spark and time until one is experienced in the method. The desiccating form gives mild heat and destroys by dehydration. It is used for small growths and surface effects. Fulguration and coagulation produce more profound effects and are used for larger masses and depth destruction.

When high frequency currents are passed through electrodes composed of block tin or fine metal mesh of sufficient size to prevent the concentration of heat above the tolerance of tissue, it is referred to as "medical diathermy." When so applied, the current passes in the most direct path between electrodes, deep heat being produced within the interposed tissues. Maximum concentration of heat is midway between electrodes of equal size and nearest the smallest electrode when they are of different size. Thus, presumably, the greatest heat can be concentrated at any depth in the body desired. In medical diathermy, the spark gaps are kept small and high amperage is used. The exact amount varies from 100 m. a. to 2,500 m. a. Not more than 65 to 75 milliamperes per square inch of the smaller electrode are used, and in actual practice more attention is paid to the patients' subjective sensations than to the ammeter. Where the smaller electrode is within an insensitive part, as in the use of the Corbus cervical thermophore, a thermometer is inserted within the electrode. The effects of medical diathermy are secondary to heat production, and are listed as:

Vaso-dilatation and capillary hyperemia;
Relief of venous congestion;
Stimulation of cell metabolism;
Absorption of exudates;
Softening of sclerotic tissue;
Sedative action on nerves and muscles;
Relieving spasm and pain.
(See Fig. II.)

CLASSIFICATION OF HIGH FREQUENCY CURRENTS USED IN GYNECOLOGY

SURGICAL

Oudin	High voltage low amperage The so-called "cold" spark for desiccation.
Tesla	Medium voltage medium amperage The burning spark for fulguration.
D'Arsonval	Low voltage high amperage The powerful heat for coagulation.

MEDICAL

D'Arsonval	The true diathermy current Vaso-Dilatation Capillary hyperemia Relief of venous congestion Stimulation of cell metabolism Softening of sclerotic tissue Absorption of exudates Sedative action on nerves and muscles.

Fig. II.

I shall not attempt to review the literature on diathermy, which is both great in quantity and contradictory in evidence. Articles devoted to its use in other fields of medicine are much more numerous than in gynecology, but an increasing number of gynecologists are recognizing this form of therapy as an important one in their field. Dr. Howard Kelly in his new book has a large and excellent section devoted to the subject.

I shall presume to outline my limited experience with diathermy in disorders of the female genital and genito-urinary tract, and to describe the technique used. No claim to originality in method of application is intended.

LEUCORRHEA: Recognition is made of the fact that in practically all cases of mucous discharge known as leucorrhea, the source is the over-secreting of the infected endocervical glands, and that in most instances leucorrhea means cervicitis. The cases divide themselves into five groups, according to the stage of cervicitis.

Group 1: *Slight leucorrhea due to simple hyperplasia and excess of secretion without gross cervicitis.*—This responds well to medical diathermy with the Corbus thermophore. Treatments are given once or twice weekly, lasting thirty-five to forty-five minutes, raising the temperature from 108 to 110° F. (Fig. III).

Fig. III.—Showing the method of application of the Corbus thermophore in the treatment of endocervicitis or in the use of medical diathermy for dysmenorrhea, utero-sacral patho.ogy, etc.

Group 2: *Leucorrhea with gross infection of endocervical glands.*—The discharge is more opaque and more excessive. The cervical canal is found to be abnormally large and filled with soft granulations, as disclosed by the passage of a dilator or the use of a curette. I have failed to get good results with diathermy in this group of cases, the pathology apparently being too extensive. Perfect results are obtained by dilating the canal and curetting the same with a small, sharp curette (Fig. IV). When the gonococcus is the causative agent, I prefer to dilate the canal and to streak it with the nasal cautery. Corbus treats gonococcal cervicitis and gonococcal urethritis with his thermophore and gets good results. The theory is that the gonococci succumb readily to a temperature of 113 F., and are inactivated by a temperature of 104 F. It has been my experience to get frequent recurrences after this form of treatment. There is, however, one form of pathology here which responds perfectly to medical diathermy with the Corbus cervical electrode. I refer to inflammation of the utero-sacral ligaments and parametritis. Whether this is secondary to cervicitis, or to purulent infection of the tubes, marked relief from backache and tenderness of the utero-sacral ligaments is obtained.

Fig. IV.—Showing the location and extent of the endocervical glands (Corbus and O'Conor). Gross infection treated by diathermy with Corbus thermophore or better by dilatation and curettage or cauterization of the canal.

Group 3: *Leucorrhea with cervicitis and erosion.*—The erosion is simply columnar epithelium from the cervical canal, which, under the stimulation of the infected endo-cervical glands, proliferates and invades the vaginal cervix, normally covered by stratified squamous epithelium. Erosions are thus always the mark of more advanced cervicitis and do not respond well to medical diathermy. The erosion and the cervicitis must be treated together, and the infected endo-cervical glands must be treated radically. If the discharge is only moderate and non-purulent, the canal is thoroughly curetted and antiseptic applications made during the next few days. Where the purulent nature or excessiveness of the discharge contra-indicates this, electro-coagulation is used to destroy the endo-cervical wall to the depth of several millimeters. With the inactive electrode on the abdomen, the pointed electrode is inserted to the internal os and withdrawn against the canal with the coagulation current on. Streaks are made anteriorly, posteriorly and laterally. (Fig. V). The same thing may be accomplished with the nasal cautery, but the discharge interferes with its action, more difficulty is experienced in introducing it to the internal os and the resultant scar is harder. After either method, stricture of the canal is exceedingly rare and is readily handled. Ende, of New York, has recently described an endo-cervical electrode

which contains both poles within itself, the advantages being diminished pain and better control of the depth of destruction. In many cases, he rotates the electrode completely within the cervical canal.

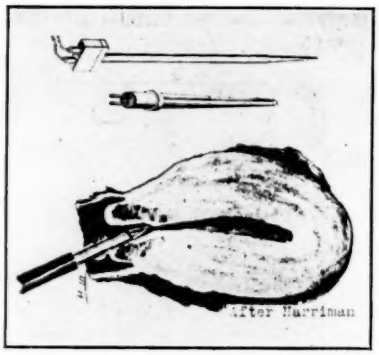

Fig. V.—Above: The new "Enoe" bipolar cervical electrode. Below: Electro-coagulation of the cervical canal.

The accompanying erosion is best treated by the actual cautery. Small central erosions may be coagulated, along with the endo-cervix, but, for the larger erosions, cautery streaks at one or more sittings is the method of choice. There is less tendency to bleeding and less mass destruction of tissue. Under the influence of the cautery streaks, the normal stratified squamous epithelium pushes back the columnar epithelium of the erosion and covers the vaginal cervix in several weeks. (Fig. V-A).

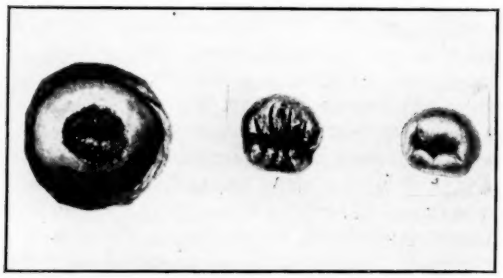

Fig. V-A.—The granular stage of an "Erosion." "Cautery Streak" method of treatment. End results (after Matthews).

Group 4: *Cystic degeneration of the cervix.*—This is the late stage of cervicitis with erosion, small, shot-like, sago colored cysts (Nabothian cysts). They shine through the thickened and smoothed out columnar epithelium. Two methods are here available,—puncture of the cysts by electro-coagulation, or by the cautery. (Fig. VI). Electro-coagulation has the advantage of destroying the cystic glands, as well as such adjacent tissue as may be desirable to shrink up the hypertrophied cervix, without

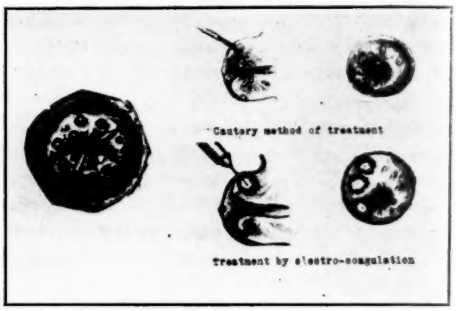

Fig. VI.—The follicular stage of an "Erosion".

undue danger from hemorrhage. I have felt that this method has given better results than the use of the cautery.

Group 5: *The lacerated, infected, dumb-bell cervix.*—Here the old lacerated lips have become completely infected, swollen, everted and rounded. I know of no method, short of surgical removal, which gives such perfect results as surgical diathermy in this type of case. The needle electrode is plunged well into the hypertrophied tissue in a circumferential zone about the canal. The coagulated areas slough out, and the resulting cicatricial contraction produces a cervix, reduced in size and glandular activity. The method requires the courage of your conviction, but the final results, in selected cases, are excellent. (Fig. VII).

A B C

Fig. VII.—A. The lacerated "Dumb-Bell" cervix. Responds well to shrinkage with electro-coagulation.
B. Electro-coagulation applied to the "Dumb-Bell" cervix.
C. The lacerated cervix with gaping lips which is best treated by resection.

Group 6: In contrast to the last type, I would mention *the bilaterally lacerated cervix with large, bluish, edematous lips which gape unduly.* The circulation seems to be funda-

mentally impaired in these cases, and the only cure is surgical resection.

Attempts have been made to cure the peculiar vaginal discharge attributed to the trichoma vaginalis with diathermy, but so far no reports of success are available. Hanging drop preparations should be made in all cases of leucorrhea to exclude this intractable condition.

Dysmenorrhea: Coming to the cases of painful menstruation, we arrive at the fertile field for medical diathermy. Various writers report from 50 to 75 per cent cures. My own experience with the method has been a happy one. Treatments are given three to four times between each menstrual period, medical diathermy from thirty-five to forty-five minutes each treatment being used. In virgins, the application is abdomino-dorsal, using 800 to 1,200 m. a. through the entire pelvis, while in married women, the Corbus thermophore in the cervix and block electrode on the abdomen are preferable. So far, I have been unable to differentiate between the results in the various forms of dysmenorrhea—virginal, congestive, obstructive, tubal or ovarian,—but have obtained particularly good results in the congestive and obstructive type. And special mention should be made of those cases which, following a laparotomy for chronic pelvic inflammatory disease, begin to suffer severe pain at each menstrual period in the side on which whole or part of an ovary has been left. Medical diathermy, with a plate over the painful side and the Corbus thermophore in the cervix, often cures these cases.

Before leaving dysmenorrhea, it must be added that, in many cases, other forms of therapy have been used in conjunction with the diathermy treatments. Thyroid substance has been given to cases with lowered basal metabolic rate, anterior pituitary to those showing evidence of pituitary disturbance, and a low caloric diet to the obese. None of my cases are of sufficient duration to warrant the conclusion that they are permanently cured. (Fig. VIII).

DIATHERMY IN MENSTRUAL DISTURBANCES

Benefited	*Contraindicated*
Dysmenorrhea	Menorrhagia
Oligomenorrhea	Metrorrhagia
Amenorrhea	
Irregular Menses	

Fig. VIII.

Oligomenorrhea: This is another type of menstrual disturbance in which I have obtained, at least temporarily, good results with diathermy. I refer to those cases of insufficient flow,—a little spotting for one or two days, with attendant mental depression. Often one ovary, or an ovary and part of the other one has been removed at operation. From the endocrine point of view, there is a hypo-ovarianism, and, in many cases, an associated hypo-thyroidism and hypo-pituitarism. It has been my experience that thyroid, pituitary and ovarian substance alone have not increased the flow, while, in conjunction with medical diathermy, definitely gratifying results have been obtained. The treatments, however, have had to be continued indefinitely, several times between each period, and I am wondering just how long this form of therapy can be continued safely and effectively. The technique has been the use of the plate electrode over alternate ovaries and the Corbus electrode in the cervix.

I have had no experience in the use of diathermy to re-establish menses in premature menopause, or in an occasional amenorrhea of the younger patients, but some writers have claimed good results. I have seen no reports of its use in the treatment of irregular menses, and have had only limited personal experience in the same.

Metrorrhagia: Diathermy is contra-indicated in cases of excessive menstrual flow, except where this is due to extensive cervical infection, in which case surgical diathermy may be used to treat the cervicitis. In menopausal flooding, it is definitely contra-indicated.

Loss of Libido: No definite results have been obtained by me in treating loss of libido by diathermy, but my series is small. A few cases have reported increased desire between the treatments.

Salpingitis: Medical diathermy in conjunction with protein therapy and hot douches has been of definite help in relieving the pain, and obtaining a remission in subacutely inflamed tubes, tubo-ovarian masses, and purulent salpingitis draining into and through the uterus. Its use to alleviate the accentuated pain in the diseased appendages at menstrual time has been previously mentioned. The plate electrode is used over the affected appendage and the Chapman vaginal electrode per vaginam. (Fig. VIII-A). When one tube and ovary have been removed, it is especially gratifying

to find it possible to preserve the remaining adnexa by this form of therapy. And when the gonococcus is the causative micro-organism, after diathermy treatments with the cervix thermophore, dilatation and cauterization of the canal as an aid to cleaning up the tubal infection are much easier. Increase in pain, or rise in temperature, calls for a cessation of electrical treatment. I have not used diathermy pre-operatively to loosen indurated masses, but many writers state that the method greatly facilitates dissection at time of operation.

Fig. VIII-A.—Use of the Chapman Vaginal Electrode in the treatment of subacute and chronic adnexal disease.

Ureteral Stricture: I have occasionally employed diathermy treatment after dilatation of the ureter for stricture, and have felt that the cystoscopic treatment has been less often followed by spasmodic contraction of the ureter.

There remain to be discussed those cases of gland infection, small tumor, and ulcer formation, which, in selected cases, respond well to surgical diathermy.

Bartholinitis: In the chronically infected but not grossly enlarged gland, electro-desiccation can be used to destroy the sac. A few drops of 1 per cent novocain are run into the gland through a small hypodermic needle. The syringe is then detached, and the needle left in situ to be used as the active electrode. A weak current is turned on until the surrounding tissue is white and dry. When the gland is swollen and contains free pus, it is incised under local anesthesia, the pus evacuated, and the interior destroyed thoroughly with desiccation. When the swollen gland is chronic, surgical excision is by far the method of choice.

Skene's Gland Infection: The urethra is anesthetized with a cotton applicator dipped in 6 per cent novocain. The gland is injected with a drop of 1 per cent novocain, and desiccated with the hypodermic needle as the electrode, as described for Bartholinitis. (Fig. IX).

Fig. IX.—Orifices of Skene's glands exposed. Hypodermic needle used as electrode to desiccate gland. (Modified from Kelly.)

Urethral Caruncle and Prolapse of Urethral Meatus: Surgical diathermy is the method of choice for caruncles. Under local anesthesia, the growth is thoroughly destroyed by a desiccating current. In prolapse, as the wound heals and shrinks, the meatus retracts and presents a normal appearance.

Venereal Warts, Condylomata and Polyps: These are all destroyed effectively by the desiccating current. Where the base of the tumor can be clamped off, the procedure is simplified by applying the current through the clamp.

Pruritus Ani: Good results are claimed by superficial desiccation of localized skin areas. I have had no experience with the method.

Bladder Papillomata and Ulcers. Surgical diathermy affords brilliant results in these cases. With the active electrode passed through a hard rubber open-air Kelly cystoscope, tumors can be thoroughly destroyed by coagulation, and the base of ulcers desiccated without injury to the bladder wall. (Fig. X).

I have omitted discussion of the more recently perfected radio-therm, or cutting knife, where a current of millions of frequency is employed. The larger clinics are employing the method in resection of the bladder and in the removal of malignant growths.

Contra-Indications

As to the contra-indications to diathermy, there are not many. Like other forms of therapy, diathermy cannot be used without some thought and study. In some cases, it

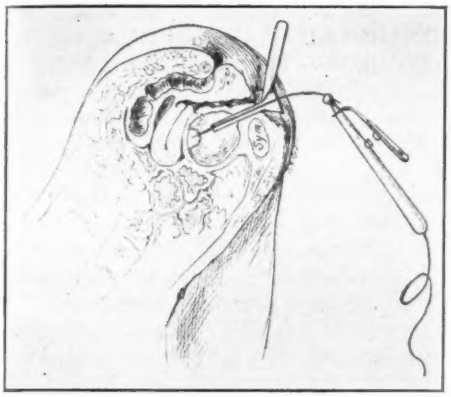

Fig. X.—Treatment of bladder papilloma through hard rubber open-air Kelly cystoscope, using monopolar or bipolar current. With latter, inactive electrode is strapped around pelvis.

may do great harm. It is thus definitely contra-indicated in cases of metrorrhagia and menorrhagia; in pyosalpinx and pelvic abscess. It must be used with great caution in patients of advanced age, or in patients suffering from serious cardiac disease, or severe nephritis.

Summary

SUMMARY OF THE USES OF DIATHERMY IN GYNECOLOGY

MEDICAL DIATHERMY

Leucorrhea of the first degree.
Utero Sacral ligament inflammation.
Dysmenorrhea.
Oligomenorrhea.
Salpingitis and tubo-ovarian disease.
As a preliminary measure to the dilatation and cauterization of the cervical canal in case of gonococcal infection

SURGICAL DIATHERMY

Endocervicitis, small erosions.
Cystic degeneration of the cervix.
The lacerated, infected dumb-bell cervix.
Bartholinitis, Skene's gland infection.
Urethral caruncle, venereal warts, condylomata, polyps.
Malignant new growths.

Fig. X-A.

Whereas diathermy is not a cure-all, in selected cases, in combination with other therapy, it is certainly of great value. Reckless statements emanating from the unbeliever who condemns diathermy without sufficient investigation are a detriment to clinical progress. There are some disorders in gynecology which respond better to diathermy than to any other therapeutic agent. *Medical diathermy* is of undoubted value in leucorrhea of the first degree, utero-sacro ligament inflammation, dysmenorrhea, oligomenorrhea, salpingitis and tubo-ovarian disease, and as a preliminary measure to the dilatation and cauterization of the cervical canal in cases of gonococcal infection. *Surgical diathermy* is particularly applicable to advanced endo-cervicitis, cystic degeneration of the cervix, to the lacerated, infected dumb-bell cervix, Bartholinitis, Skene's gland infection, urethral caruncle, venereal warts, condylomata, polyps, bladder papillomata, bladder ulcers and malignant new growths. To use diathermy as a cure-all, or to employ it where it has been proven to be of no distinct value, is to cast disrepute on a method which has positive value in selected cases. On the other hand, not to use diathermy at all is to neglect a useful form of physiotherapy, which we can rightfully call our own.

Medical Arts Building.

Discussion.

Dr. C. J. Andrews, Norfolk: Dr. Lowenberg asked me to discuss this, but as a good deal of this work has been done in connection with my own work I shall not go into any of the material that he has presented. I wish to call attention to the fact that it is an extremely important thing, it is practical, and does give excellent results. I had hoped to look up my own records and give some report on those, but time was not available and I can give only very general ideas.

I became interested in this work after a paper read by Dr. Dickinson, on cautery treatment of cervicitis in 1920. Before that time we used swabs, etc., treating the woman for a long time until she got tired of coming to us and went to someone else. This is so much easier. Some of my friends have expressed the belief that all cases of cervicitis could be treated with diathermy. We have not felt that way. I would say in possibly some three hundred cases, we have operated on not more than ten or twelve, possibly fewer. Occasionally we do it in connection with some other work. The surgical method is much quicker; if the patient is away from home and has to return home, then we use the surgical procedure.

Dr. Lowenberg has called attention to Trichomonas infection. We have known some of these cases to have all manner of treatment, occasionally surgery. So I warn you not to get too enthusiastic about treating all manner of cases with this method. Fortunately, it is very easy to identify cases of Trichomonas infection if you just use the hanging drop method.

Dr. R. L. Raiford, Franklin: There is one class of cases which has not been touched on that I wish to speak of, and that is the young girl just entering menstrual life in whom we have a good deal of trouble in clearing up the anemia—cases we are accustomed to call chlorosis, or green sickness I have found these girls to invariably have an infected cervix, and a single application of surgical diathermy will usually clear them up. It is not necessary to use an anesthetic for the treatment, but one is

often required to avoid the pain of introducing the speculum.

Turning to the other end of the menstrual life, I think the only reason why more ills are attributed to the teething of babies than to the menopause is that there are more babies in the world than there are women. We still have many physicians who, when women come to them for various ills, tell them they are just passing through the "change of life" and dismiss them. It has been my experience that whenever a woman presents herself with symptoms referable to what we call the "change of life," there is some pathology back of it. A woman whose uterus is normal usually passes through her menopause just as a baby who is normal passes through his teething period, without disturbance. It is astonishing how many symptoms you can clear up in this period by the use of diathermy.

I enjoyed very much Dr. Lowenberg's paper, and I believe there is more to this subject than most of us have realized. Since I have been doing this work I have come to believe more and more each year that there is a great deal of surgery done in women's pelves that could be avoided if the cervix were cleared up first as a routine procedure. Of course, some of them will come to surgery, but I believe a great many pelvic operations can be avoided if we will look on the infected cervix as the primary focus from which pelvic pathology develops and institute proper treatment in these cases early.

DR. JOSEPH BEAR, Richmond: In chronic endocervicitis, I employ the method of dilatation and light curettage, followed by the actual cautery. The point I wish to emphasize is that very frequently when the actual cautery is applied between the external and internal os, we sometimes get the formation of secondary cicatricial tissue. Recently, there have been a certain number of cases reported in which subsequently menstruation did not reappear. In order to avoid this unfortunate occurrence, I employ the following technic: Before the operation is complete, I sponge the external os, and then take the end of a Hegar dilator Nos. 13 and 14 (after its immersion in a two per cent mercurochrome solution) and gently insert the same into the cervical canal; it is then removed and the larger end likewise inserted. By so doing, we positively know that the cervical canal is open and will be free from scar tissue.

DR. LOWENBERG, closing the discussion: I wish to thank Dr. Andrews, Dr. Raiford, and Dr. Bear for their discussion. I am glad that Dr. Raiford brought out the fact that, as has often been said, in the female, after puberty, the cervix seems to be the female tonsil and thus becomes the source of infection. Infection in the cervix can be eradicated more readily by the use of diathermy than we realize. I have often told a patient that she ought to be operated on and have treated the cervix with diathermy while the patient was getting ready to go to the hospital and have been surprised to find that the cervix has healed before the time has arrived. Since most female operations are very prolonged, it is a great help to have the cervix healed and out of the way before the operation is performed.

I think the use of the dilator, as Dr. Bear brought out, is a very good point in making sure that the cervical canal is not obliterated.

EXPERIENCES WITH A REMEDY FOR CONTROLLING HEMORRHAGE, INCLUDING THOSE FOLLOWING TONSILLECTOMIES.*

By J. H. HIDEN, M. D., Pungoteague, Va.

In a conversation with a surgeon of national reputation, the remark was made that he wished his tonsils were out. To this I replied: "Why don't you have them removed?" He replied: "I am afraid of hemorrhage." To this I remarked: "You are in a great hospital with expert surgeons around you, why should you be afraid?" Again, he replied: "I have seen enough. I have had to ligate the external carotid artery on two occasions for these surgeons, following a tonsillectomy in each case." Another surgeon of reputation was present and added: "Sometime ago a boy of about twelve years of age had a tonsillectomy done at my hospital and every known method for controlling hemorrhage was tried without success."

Such experiences among our best surgeons, along with the obvious fact that no method for controlling hemorrhage is the best for all cases alike, suggest the thought that any method that has been successfully used in any considerable number of obstinate cases ought to be generally known and its technique well understood, and if not generally adopted for the majority of cases, at least, held in reserve for special cases in emergency.

The desire to find such a remedy was greatly intensified some years ago, when I came so near losing my youngest son in a Baltimore hospital, following a tonsil operation, performed by an experienced surgeon. When the child was almost exsanguinated and in a state of collapse, cold, pallid, unconscious and pulseless, to struggle with what appeared certain death, with a screaming wife and mother by my side, was an experience that is not easily forgotten. Following this experience I have for fifteen years been working to this end, namely, to find and test some remedy that could be easily applied to any bleeding surface, and secure reasonable safety against the great majority of hemorrhages. Many remedies have been tried and tested as local applications, most of which, showing only astringent properties, have been disappointing, and some, practically worthless.

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Newport News, Va., December 3-5, 1929.

While making many of these tests I thought of trying pulverized permanganate of potassium mixed with some other powder to modify its caustic properties. The selection of the powder for this mixture was suggested by the properties of zinc oxide, its sticking and oxidizing properties. Moreover, its soothing properties make it well adapted to neutralize the continued caustic action of the other powder. After mixing these powders in various proportions to find the most suitable strength for the average case of hemorrhage, I found they serve to seal the small arterioles and capillaries instead of acting as a mere astringent of only temporary action. In this mixture we have then, not only astringent and antiseptic properties, but sealing properties also, and this latter feature is the most important one for us to consider; for by this action upon the bleeding vessels we get more permanent results than when mere astringents, such as adrenalin chloride, tannic acid, alum, sulphate of zinc, acetate of lead, silver solutions, iron preparations, including Monsel's solution, etc., are used.

Now in presenting this simple method for controlling hemorrhage, I trust you will not misunderstand me. It is not recommended for every kind of case alike, neither is it recommended as a substitute for a nice surgical transfixion under ideal conditions when such a course is most desirable for securing spurting arteries or profusely bleeding veins. Under such conditions I prefer a skilfully placed transfixion to any other method when this can be easily done, but in many cases of persistent hemorrhage, spurting arteries cannot be found, and oftentimes the exact location from which the bleeding comes seems hard to determine. Indeed, in some cases of hemorrhage there is a persistent oozing from various sources and often it is found in difficult places in which a surgical transfixion or an arterial ligation is hardly applicable. In such cases, especially, I have found my simple remedy very efficient, and it has often relieved me of much anxiety and embarrassment when used. This is especially true in some tonsillar cases.

The Remedy

Returning again to the nature and preparation of the remedy, it is, as before stated, a mixture of pulverized permanganate of potassium and oxide of zinc. In preparing this mixture I usually make two strengths, one a 25 per cent of the permanganate and 75 per cent of the zinc, the other 40 per cent of the permanganate and 60 per cent of the zinc. Some cases will do well with the weaker mixture while others may require the stronger mixture. I have occasionally used equal parts of the component powders in very obstinate cases of hemorrhage with excellent results. The mixture should be used fresh and mixed well, but loosely. If allowed to stand very long, it loses much of its efficiency, and may become practically no more than a permanganate of zinc, or at least, lose much of its sealing properties.

The Technique

In applying this mixture for hemorrhage it is best first to apply a sterile gauze sponge or a firm tampon against the bleeding surface, and use enough gentle pressure to check the bleeding long enough to apply the remedy directly to the bleeding tissues so that the powder may come in direct contact with the arterioles and capillaries without being mixed with blood, or having blood between the medicine and the capillaries. This feature in the technique is often very important to observe.

Again, when the medicine is applied, you should use, not only a little gentle pressure, but also hold the remedy there for two or three minutes, or even longer, if necessary, so as to let its action on the tissues and capillaries take well before removing this gauze sponge. If you fail to do this, the bleeding vessels, by their internal local pressure, will wash away the medicine before it can get fastened to the lumen of the capillaries and minute arterioles and seal them securely. A little care in the technique will often result in a brilliant success that would otherwise be a failure. In tonsil cases in which the bleeding is persistent, I use the usual pressure with sterile gauze until the bleeding checks, then, with an applicator ready with a good piece of cotton wound around it the proper size to fit the bleeding surface, I quickly make the medicinal application. This is done by dipping the applicator in water, then in the mixture, and then to the tonsil fossa from whence the bleeding comes. This application is made rapidly as you release the other tampon or gauze from the fossa. Here it is held, as before suggested, for three or four minutes. The fossa

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is then inspected. If this is not dry, the process is repeated until it is dry. If the technique is properly carried out, the fossa, in my experience, soon becomes almost universally, dry, and I may add, with a dry fossa you seldom have further trouble, differing in this respect from checking the bleeding with the commonly used pressure and astringents.

Further, there are many other conditions besides those following tonsil operations in which I have found this method of controlling hemorrhage very convenient and successful, and so will give you a sort of inventory of the kind of cases in which I have used it. In none of these have I ever had reason to regret its adoption. Theoretically, many objections may be advanced against its general use, but practically, in my hands, I have so far found these purely imaginary, or at least, of no consequence when we have to face an alarming hemorrhage that is not easily controlled by the usual methods. The greatest objection to its use, in my experience, is that it is sometimes a little painful for a short time; but even this feature can be practically eliminated by first applying to the surface to be treated a little cotton, soaked in a solution of butyn or codrenin a minute before applying the hemostatic mixture.

The Inventory of Cases

Tonsil cases following operations, 58.

Hemorrhoidal cases following operations, 16.

Following operations for urethral papillomata, 2.

Following removal of a large papilloma of the temporal region (1½ inches in diameter), 1.

In nasal hemorrhages of a severe type, 8.

Following the excision of a carbuncle of the upper lip, 1.

Following the excision of large, painful nodules of scar-tissue, resulting from an old healed carbuncle of the neck, 2.

In uterine cases, metrorrhagias, 4.

Following the removal of uterine polypi, 5.

Persistent hemorrhage from a haemotoma of the jaw near a diseased tooth that had resisted many other efforts to control it, 1.

Following an obstinate hemorrhage of the forefinger that had been cut obliquely off in a sawmill accident, 1.

Following obstinate hemorrhage from a deep cut of the thigh, referred to me, after packings and pressure had failed to control it, 1.

In a case of alarming hemorrhage from the throat, due to a cancer eating through some of the small vessels, and the patient threatened with exsanguination and collapse, 1.

A similar case of threatened exsanguination from a cancer of the face, with approaching collapse, 1.

In minor cases, following the removal of moles, warts, sebaceous cysts and small papillomata, 69.

In addition to these, a considerable number in which no accurate records were kept, but estimated to be about a hundred or more cases of annoying bleeding, some of which were quite alarming to the patients and their families after teeth extraction by dentists and others.

With these experiences I am glad for my fellow physicians to have the benefit of my observations in this line of work.

SKIN DISEASES ABOUT THE EYES.

By RUSSELL FIELDS, M. D., Washington, D. C

Skin diseases about the eyes are a subject of especial consideration. An accurate diagnosis is essential because of the delicacy of the adjoining structures. The treatment is likewise difficult. It is the purpose of this paper to relate some of the common skin lesions in this area together with the appropriate treatment.

Eczema of the seborrheic type is probably the most common lesion encountered. One or both lids are involved. The onset may be one of a subjective sense of stiffness on opening the eye to that of a slight puffiness. It is frequently rather acute. As a rule this condition passes quickly into a subacute stage. Itching and burning may or may not be a prominent symptom. In this stage a fine greasy scale on a pale erythematous base is seen. Dandruff is frequently present on the scalp and its etiology probably is related to that of seborrhea. Nervous tension no doubt plays a part in the cause as well as variations of climate and temperature. These various conditions combined with a predisposition on the part of certain individuals seem to be factors of importance. Another form of seborrhoea near the eye is that commonly known as blepharitis.

An ordinary acute eczema may find its starting point about the eye. Here we find the onset more acute although the symptoms are much the same. There is much more of a

tendency to spread. The erythema is a brighter red. Papules and vesicles are present and the scaling is less. At times an acute eczema may simulate an erysipelas but in the latter the skin is much more tender and firmer to the touch. Here again the etiology is not well defined, but it is more probably due to a pollen or protein sensitizations. The application of too strong medicaments, chronic conjunctivitis, ectropion and affections of the lachrymal sac are also factors entering into its causation. Eczema of the lids in children is common and frequently accompanied by a phlyctenular conjunctivitis. The treatment of eczemas about the eye of the above type is often quite difficult, while many cases clear up quickly with little or no treatment. Treatment of an eczema which accompanies a conjunctivitis will oftentimes enable the ophthalmologist to cure the latter condition more quickly and efficiently.

In the acute cases with edema lotions are the method of choice, cool applications of aluminum acetate having been found serviceable. Boric acid compresses may also be used. The boric acid should be well dissolved before using so that the crystals do not remain as such in the crevices and carry on an irritation. When the edema is due to an eczema, it will usually subside in twenty-four to forty-eight hours. If it persists longer than this, it is wise to call in an ophthalmologist to rule out any eye condition. Magnesium sulphate applications used to reduce an edema associated with eczema are inadvisable. If the edema is slight and subsiding, the frequent and careful application of a one per cent aqueous solution of resorcin will hasten the absorption and drying process. Electrotherapy of any kind is best avoided during the first twenty-four to forty-eight hours. After this time there is frequently a marked tendency for the condition to become chronic and in such cases mild doses of X-ray, one-eighth to one-quarter units, are of a great help. This will oftentimes shorten the duration of the disease. In the subacute and chronic stages boric acid ointment or combinations of one dram of zinc oxide to the ounce of ung. aquae rosae are useful. Pledgets of cotton upon which the ointment to be used has been thickly smeared are placed on each lid. These are retained best by a bandage.

Blepharitis squamosa (granulated eyelids) may be the forerunner of a severe eczema about the eye. The cause of the blepharitis must first be eliminated. According to Fuchs, the border of the lids is merely a modified form of epithelium and hence the blepharitis is quite like a dermatological lesion. The application of one-half to one per cent yellow oxide of mercury or two per cent boric acid ointment with lanolin and vaseline equal parts is advised. Frequently this will not cure the condition, and resort must be made to topical application of one per cent silver nitrate and other remedies, always to be applied by the physician. All crusts should be removed before applying any ointments. Warm applications of olive oil are useful for this purpose. Diseases of the cilia which frequently require epilation are best handled by the ophthalmologist. Occasionally, when the cilia are very short, electrolysis is used. A primary or secondary impetiginous conjunctivitis often causes an eczema of the surrounding skin. The use of five or ten per cent solution of argyrol freshly prepared and boric acid irrgations will aid this condition along with the appropriate treatment for the accompanyng eczema and blepharitis.

An external angular conjunctivitis is a condition which causes both the dermatologist and the oculist some concern. The condition will frequently clear up miraculously in a day or two only to reappear immediately. The mild cauterization with silver nitrate together with small doses of X-ray, one-eighth to one-twelfth units, will be found useful. As the blepharitis and conjunctivitis may be the cause of the eczema, so too their etiology may lie in some defect in vision or eye-strain, and this should carefully be sought for.

Erysipelas is a subject familiar to the physician. Because of its frequency the diagnosis is not difficult. The subject being an extensive one and so much having been written on the varied means of therapy, it will not be discussed here.

Probably the most painful skin lesion about the eye is that of herpes zoster (facialis). The presence of grouped vesicles unilaterally situated on the eyelid, supra- or infraorbital region, associated with a slight tingling and burning sensation to that of marked pain and edema, are sufficient to make the diagnosis When the lesions appear on the nose or the infraorbital region, there is more likely to be

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corneal involvement. When eye complications occur, they are usually more of an iritis or iritis-cyclitis and keratitis. As a rule, the condition runs its course from a few days to several weeks, and is not serious. Sometimes a necrosis takes place, leaving a scar, but this is rare. The diagnosis having been established, every precaution should be taken to prevent the lesion becoming worse, rather than that much attempt should be made to cure the condition. This is best accomplished by absolute rest, and freedom from worry as far as possible. Salicylates, autohemotherapy, injections of foreign protein and soothing salves may be tried, but, other than the analgesic properties of the latter, they will not affect the course of the disease. Diathermy is probably the best means of relief.

Epitheliomas upon and surrounding the eyelids are usually easily recognized, and, due to the difficulty of surgical intervention in this area, the judicious use of X-rays and radium and at times some desiccation will cure the average case. It is to be remembered that the eye is less susceptible to moderate doses of X-ray and radium.

Xantholasma (xanthoma palpebrarum) is another common disease affecting the upper eyelid. The lesions are slightly raised, yellowish patches. They are soft and sharply demarcated. They are one to several in number. The subjective symptoms are nil. Treatment is best carried out by the use of trichloracetic acid, carbon dioxide snow, the electric needle, or desiccation.

Herpes febrilis, characterized by small, limpid, grouped vesicles on the lids, often accompanies an acute febrile disturbance.

A diagnostic point frequently overlooked is pigmentation about the eyelids. This is often noticed in long standing cases of leucorrhoea, dyspepsia, exophthalmic goitre, chlorosis, amenorrhea and phthisis. Of course, here the treatment of the condition lies in removing the cause.

Other less frequent lesions of the skin about the eye are furunculosis, anthrax pustules, chancre, chancroid, lepra, sporotrichosis, blastomycosis, lupus vulgaris and lid abscess.

REFERENCES.

Fuchs: Textbook of Ophthalmology, 8th Ed., Lippincott, Philadelphia.

Barton and Yater: Symptom Diagnoses. D. Appleton & Co., New York, 1927.

Columbia Medical Building,
1835 *Eye Street, Northwest.*

THE DEVELOPMENT OF PERNICIOUS ANEMIA IN A PATIENT UNDER OBSERVATION. A CASE REPORT.*

By DEWEY DAVIS, M. D.,
and
DOUGLAS VANDERHOOF, M. D.,
Richmond, Va.

Mrs. C., age 53, was admitted to the Johnston-Willis Hospital June 30, 1924. She complained of trouble with her eyes. She had typhoid fever at the age of 19 and peritonitis when 22. She had suffered with indigestion as long as she could remember, characterized by slight nausea and constipation alternating with diarrhea. In 1918, while convalescing from an operation for removal of the uterus and appendix, she developed corneal ulcers on both sides which healed promptly. During the summer of 1923, an ulcer developed on the left cornea which only healed after all her teeth were extracted. For two weeks before she entered the hospital she had suffered severely with attacks of pain in the left eye and both became inflamed. Her stomach trouble was no worse than usual and she had never had any soreness of her tongue. Physical examination disclosed considerable ulceration of both corneas and pus retention in the tonsils. She was moderately undernourished.

Laboratory examinations showed hemoglobin 70 per cent, with a normal differential count and normal morphology of the red cells. The urine was normal and the blood Wassermann reaction negative. Two gastric analyses by the fractional method disclosed achlorhydria.

Her tonsils were removed and local treatment was prescribed for the eye condition by an ophthalmic colleague. In addition she was given four teaspoonsful of dilute hydrochloric acid a day, one before breakfast and the others with meals.

On August 8, 1924, she reported symptom free and she had scarcely missed a dose of hydrochloric acid. The hemoglobin was 69 per cent, red blood count 3,110,000, color index 1+, gastric analysis still showed free hydrochloric acid absent.

Occasional reports from her indicated good health until March, 1929, when she returned because of slight fever and attacks of abdominal pain, suggesting cholecystitis. She had for a short time noticed some sore tongue and a burning sensation in the epigastrium.

*Presented before a meeting of the Richmond Academy of Medicine, at Richmond, Va., November 12, 1929.

Her weight was 109 pounds. Physical examination was negative except for moderate corneal scarring and slight atrophic glossitis. The blood count was hemoglobin 62 per cent, red blood cells 2,380,000, mean diameter of red cells 8.53 microns (normal 7.40 microns), and the form of the red cell curve was typical of pernicious anemia. Cholecystography disclosed a gall-bladder with normal function. She expressed doubt as to the strength of the hydrochloric acid which she was accustomed to taking in teaspoonful dosage with meals, but analysis of a specimen showed a concentration of approximately 10 per cent.

She was immediately ordered three ounces of a potent liquid liver extract a day. Eight days later the blood count was hemoglobin 52 per cent, red blood count 2,160,000, reticulocytes 14.4 per cent. Three weeks later her hemoglobin was 70 per cent, and red blood count 3,890,000. Her temperature disappeared, there was no abdominal discomfort and she felt well. The daily allowance of liver extract was reduced to two ounces and six weeks later her blood count was normal. The liver extract was discontinued but she continued taking dilute hydrochloric acid as her indigestion returned if it was omitted.

Three months later she returned because of a recurrence of fever and epigastric pain. The blood count at this visit was hemoglobin 67 per cent, and red blood count 2,500,000. Adequate liver extract therapy restored this to normal in one month. She is now taking one ounce of liver extract and three teaspoonsful of dilute hydrochloric acid a day. At no time has she shown any evidence of neurological changes.

Comment.

The interesting features in this case are the development of pernicious anemia while she was under observation and while she was taking what we considered adequate doses of hydrochloric acid, something which has not occurred before in our experience; the fever and abdominal pain during the period of rapid blood count decline, and the prompt and repeated response to liver extract.

We have been able to collect from the literature thirty-two cases in which achlorhydria was demonstrated preceding the development of pernicious anemia from three months to twenty-five years, and, including the above case, we have seen ten such instances, the longest intervening period being eight years. Of these ten, however, only this one reported developed the anemia while taking what we consider sufficient hydrochloric acid dosage.

This case again serves to remind us of the wonderful boon to mankind furnished by Minot and his associates in their discovery of the effectiveness of liver therapy in the control of pernicious anemia.

608 *Professional Building.*

NON-DIABETIC HYPERGLYCEMIA AND GLYCOSURIA.*

By CHARLES M. CARAVATI, M. D., Richmond, Va.

The repeated presence of sugar in the urine, together with a definitely elevated blood sugar level, has heretofore been considered sufficient evidence to establish a diagnosis of diabetes mellitus. More recently, however, it has been conclusively demonstrated, that following trauma, or during the course of some infection or toxemia, glycosuria and a high-fasting blood sugar estimation are often present, only to disappear after the primary focus has subsided. This temporary diabetic state may be fulminating and of short duration, or may be of longer standing and of a mild degree. It at times cannot be differentiated from true diabetes mellitus, until the disappearance of sugar after subsidence of all symptoms, due to the toxemia or infection.

Detailed report of all conditions causing this state, will not be possible in this brief article, but several of the more frequent and interesting causes of increased glycemia, with resulting glycosuria, will be mentioned.

"Renal Diabetes" is a condition probably resulting from an abnormal permeability of the kidneys to glucose. It is not a disease entity and the causation is undetermined. There is a constant glycosuria, which is little affected by the carbohydrate intake and always a normal blood sugar level. It differs from true diabetes mellitus in this fact, and the familiar symptoms of thirst, weakness, loss of weight, polyuria, pruritus, etc., are absent in renal glycosuria. It requires no treatment.

Excessive ingestion of sugar may result in a temporary hyperglycemia and a consequent overflow of glucose into the genito-urinary tract. This is probably due to the failure of the liver to convert the glucose into glycogen

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in a given time and is termed "alimentary glycosuria."

Overactivity of the posterior lobe of the pituitary gland often results in a diminished tolerance for carbohydrates. This, like the piqûre of Claude Bernard, may be due to the too rapid change from glycogen to glucose, by the liver, with an oversupply of glucose thrown into the blood stream. Claude Bernard, experimentally punctured the floor of the fourth ventricle and demonstrated that there was a resulting glycosuria which persisted several hours.

Elliott, in the *Medical Clinics of North America*, reported a case of marked hyperglycemia and glycosuria following a cerebral hemorrhage. In his case the intense and increasing hyperglycemia was little influenced by massive dosage of insulin and there was no ketosis.

Meninger has reported a transitory glycosuria, after all forms of cerebral trauma. Higgins and Ogden found glycosuria in 9% of all head injuries but less than 1% showed a lasting glycosuria.

It seems definite that hyperglycemia and glycosuria, associated with cerebral trauma and hemorrhage, are not analogous to pancreatic diabetes. There may be a central origin of this apparent diabetic complex.

McNish, in 1889, reported a peculiar case in which glycosuria complicated a severe burn. It is noteworthy that in this case glycosuria increased with marked rapidity, persisted during the acute septic state of the burn, decreased suddenly and disappeared, never to return. There was no record of blood sugar determinations.

Marsh, in 1926, analyzed glycosuria as found in thyro-toxicosis and concluded that two distinct types were found—one systemic and the other diabetic.

As is well known, a lowered glucose tolerance is common in hyperthyroidism, and this is not due to the inability of the individual to burn sugar, for they utilize more carbohydrates. The action of the excess thyroid secretion is to discharge the liver glycogen and to inhibit its storage. The blood sugar curve in the glucose tolerance test helps clinically to differentiate the true diabetic from the systemic thyroid diabetic. In the former, the blood sugar curve quickly rises and maintains its maximum for three or four hours, while in the latter, the thyroid, there is a rapid rise and a rapid fall of the blood sugar level, reaching normal at end of one hour.

Two cases of syphilis of the pancreas are reported in the literature associated with hyperglycemia and glycosuria with no subjective findings characteristic of pancreatic diabetes. Strenuous anti-luetic treatment in both has resulted in a cure of the syphilis and a disappearance of the glycosuria. Followed over a long period, there has been no return of the diabetic complex in either patient.

The literature studied revealed only occasional reference concerning the presence of definite hyperglycemia and glycosuria in certain acute toxic conditions in non-diabetic individuals, and it is with this in mind that the following case reports are submitted.

Case Reports.

Mrs. T. C., age 30. White, female: Was seen at her home on December 23, 1928, acutely ill. She had been nauseated for twelve days and vomiting constantly for past three days. The vomitus was brown and she could retain nothing. Her last menstrual period was October, 1928. She considered herself pregnant. She had one child, four years old. Had had two miscarriages, both when about two months' pregnant, and both within the past two years. One was therapeutic. During these two pregnancies, she apparently had pernicious vomiting. One pregnancy terminated spontaneously.

Her appendix was removed three years before. She was seen in my office three months before this illness, and thorough study revealed only achlorhydria, a mild endocervicitis, and a lowered metabolic rate. At that time urinalysis and blood sugar determinations were negative.

When first seen acutely ill, she was dehydrated and semi-comatose and was therefore immediately moved to the hospital. Examination at that time revealed only a quickened pulse, with blood pressure 94/70. Constant vomiting of a brownish green fluid continued. Vaginal examination showed uterus enlarged, about size of a two months' pregnancy. There appeared to be a small mass in the left fornix.

Catheterized specimen of urine on admittance disclosed heavy traces of sugar, albumen, acetone and diacetic acid.

Blood chemistry three hours later showed a N. P. N. 56, sugar 360 mgms. In the face

of this, she was considered to be in beginning diabetic coma, with pernicious vomiting of pregnancy. Glucose and soda proctoclysis, with saline intravenously, were given, and were followed with gastric lavage. Forty units of insulin were given every two hours for three doses, then reduced to ten units at two hour intervals. This was continued for two days. Orange juice with sugar was given by mouth.

The next day, the blood sugar was 385 mgms., with glycosuria persistent. Vomiting persisted, condition unchanged. The following day, the blood super level had reduced to 220 mgms., with a plasma CO_2 of 60 vol. per cent. Vomiting had ceased.

Two days later the blood sugar was 125 mgms. Glycosuria continued for four days. Insulin dosage was reduced so that on the tenth day she was receiving five units, three times daily.

On the advice of the obstetrician, corpus luteum ampules were administered three times daily, for five days.

She was discharged from the hospital two weeks after admittance, free from sugar, on a low carbohydrate maintenance diet, 1456 calories.

Insulin was discontinued after one week.

She has been closely followed since last January, having been observed every two weeks.

She was allowed a full diet on February 15th and encouraged to eat freely of sweets. Careful check of urine for sugar, and of the blood for increase glucose, revealed normal findings.

Until this date, one year since the described illness, she has been sugar free, but at times has shown some ketone bodies in her urine. She has been a sub-normal thyroid individual, who also has a very low gastric acidity.

Subsequently to the acute illness, the menses were again established in February and continued regularly until September, last. Three weeks after the expected menses were due, morning nausea began, then vomiting, and on October 5th she again began to show unmistakable evidence of pernicious vomiting. All measures failed to relieve her and she was admitted to hospital three days later; at which time she was semi-comatose, vomiting continually a brownish green fluid and could retain nothing. At this time her blood sugar was 115 mgms. Blood N. P. N. 42. Sugar was absent, but acetone and diacetic acid were present, in repeated characterized specimens of urine. Proctoclysis, hypodermoclysis and gastric lavage, with bromide, per rectum, relieved her condition in four to six days.

She spontaneously aborted on the eighth day after admittance to the hospital. She is now normal and presents no evidence of a glycemic state.

As can be seen, during this marked and definite toxic state, the patient showed no evidence of lowered sugar tolerance, and since that time, a glucose tolerance test and repeated blood sugar determinations confirm the assumption that she had not a pancreatic diabetes, but that a profound toxic state with dehydration and acidosis caused a temporary cessation of pancreatic activity, with evidence of transient diabetes mellitus, during the first of the last two pregnancies. The toxemia during each of these pregnancies was alike. The patient was similarly affected, and as profoundly toxic in both, yet the unmistakable evidence of transient pancreatic diabetes in one, and its entire absence in the other, cannot be explained.

Master J. A., age 11 years. Was seen on April 3, 1925, with all systemic signs and local chest findings characteristic of a frank, basal pneumonia. His past was remarkedly free from all physical disturbances. He had had measles and mumps. His dietary habits were good, but he was about 10% underweight, and for this reason was seen and examined by me one month previously to the onset of the acute illness. At that time, besides some dental caries and a faintly positive intradermal Von Pirquet reaction, he showed no evidence of trouble. His urine was free from sugar and ketone bodies, with a specific gravity of 1010.

He was acutely and dangerously ill, from the beginning of this pneumonia. Four days after its onset, he was semi-conscious and delirious, with slight cyanosis. At this time there was no glycosuria. Two days later, when systemically he was more toxic, there was definite copper reductions in three urinalyses. Fasting blood sugar revealed an estimation of 385 mgm. per 100 c.c. blood. The patient died the following day in coma.

Hourly insulin failed to influence the blood

sugar level, or the clinical course of the fatal illness. No autopsy was obtained.

COMMENT.

In view of the fact as briefly described above, it is true that certain septic and toxic conditions may give rise to a symptom complex resembling true pancreatic diabetes.

Whether these conditions are due to faulty pancreatic secretions is undetermined, but it is probable that insulin plays only a minor role in their production.

It is undoubtedly true, that the liver is involved in many toxic states, and an increased blood sugar percentage is probably due at times to an inhibition of the storage of glycogen, or to a too rapid change from glycogen to glucose, with a consequent overflow into the circulation.

It is conceivable that diabetes mellitus, formerly considered a chronic metabolic disease, may, under especial circumstances, manifest its pathology only acutely and transiently.

Evidence is not convincing that this is true, though it is interesting speculation.

The thought that there may be a cerebral origin in certain forms of lowered glucose tolerance, is worthy of passing consideration.

CONCLUSIONS.

1. Certain toxic or septic states may cause temporary hyperglycemia and glycosuria in non-diabetic individuals.

2. The cause is undetermined, but may be due to some faulty liver metabolism as regards glycogen.

807 *W. Franklin Street.*

RELEASE OF PLACENTAL BLOOD DURING THE THIRD STAGE OF LABOR.*

By PHILIP JACOBSON, M. D., Petersburg, Va.

Our present knowledge of the physiology of intra-uterine conditions and of the physiology of the foetus and placenta is largely obtained from dead rather than living organisms. Research in this particular field has not lent itself very well to experiment resulting in a state of affairs which may be considered analogous to what our knowledge of other physiological processes would be were it deprived of the results of experimental evidence. Speculation, therefore, must take the place of actual information, permitting the entrance of many erroneous ideas. Hence, the advisability of releasing the placental blood during the third stage of labor must be considered in this manner.

The purposes I have in mind of emptying the placenta of its blood immediately after the delivery of the foetus are, first, to facilitate the release of the placenta from the uterine surface, and, second, to hasten its delivery after the foetus. Both objects are obtained by reducing the volume of the placenta and by rendering it more elastic and pliable.

The placenta represents a given volume composed of blood and the placental tissues. If the blood is removed a marked reduction in volume must take place, which is greater than the volume of blood removed, due to the fact that the whole structure of the placenta is supported and made firmer by the presence of an intact capillary tree. Removal of the blood produces a collapse of the whole structure, resulting in a reduction in volume and a great increase in elasticity. It is obvious that if the removal of any material from a cavity is desired the smaller and more elastic it is, the less difficulty will be encountered during its removal. The hypothesis that, if the volume of the placenta can be suddenly decreased and its elasticity increased, the easier and quicker its expulsion will be accomplished, is not unreasonable.

The procedure is simple. After the cord has been divided and the baby taken care of, the clamp on the maternal side of the cord is removed and the blood allowed to run out. At first it will be found to be under considerable pressure, and, after about 150 to 200 c.c. will have escaped, blood will cease to flow until the first post-partum contraction of the uterus, during which considerable more will escape. During each succeeding uterine contraction, small amounts will be obtained but, in my limited experience, after the first contraction very little blood is left. The placenta can then be easily lifted by the cord through the external os and thus is readily delivered. It will be found collapsed and the amniotic sac folded over the uterine surface of the placenta.

The advisability of this maneuver is, however, quite another matter. The textbooks I have examined are unanimous in agreeing that the cord should be clamped to stay clamped until the third stage of labor is ended. The

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reasons given are many, the most important of which are that the uterus is given a firm body to act on, the circulation of possible twins is preserved and much soiling is avoided. Mere mention of this procedure is certainly flying in the face of accepted practice, and illustrates once again the ancient dictum that "fools rush in where angels fear to tread." However, since I have released this blood on several occasions with the results mentioned above, and since it has undoubtedly occurred in thousands of cases inadvertantly and unintentionally, it might be interesting to speculate on what takes place when it does occur.

When the foetus is delivered, Williams and DeLee advise waiting for the pulsations of the cord to cease or at least markedly diminish before dividing it. They advise against stripping the cord, presuming that the contractions of the uterus force an extra amount of blood into the foetus until the pulsations of the cord nearly disappear and the interchange is stopped. In this manner about 100 c.c. more blood enters the foetus than if the cord were divided immediately after delivery. Babies handled in this manner are said to thrive better, to be less subject to disease and to lose less weight. Clinically, I believe it would be extremely difficult to blame any of the shortcomings of any particular baby upon the lack of 100 c.c. of blood. Perhaps a better criterion for the time for dividing the cord would be immediately after the baby breathes a few times. If the extra blood is necessary, it requires only a few seconds for it to enter by way of the large umbilical vein. If, during labor, too much blood has been forced into the foetus by the contractions of the uterus on the placenta, an avenue of escape is provided. There is, indeed, no proof that the baby needs more blood outside the uterus, although it is the general belief that the respiratory function introduces the need for more. The circulation between the placenta and the foetus, which is probably balanced in the uterus by the pressures produced by the heart of the foetus on the arterial side and the pulsations of the uterus against the placenta on the venous side, is suddenly unbalanced by the forceful uterine contractions. If the pulsations of the cord diminish because of some inactivity of the circulation itself, then waiting for it to stop is reasonable; but, on the other hand, just what causes the pulsations of the cord to stop has never been determined. It may be that the collapse of the jelly of Wharton, because of its removal from a wet to a dry environment, may be as much a factor as any, and, if such is the case, then its use as an indicator of when to divide the cord is unreasonable. Practically, no harm is done if the cord is divided immediately after the baby is delivered, and such benefits as might accrue from delay are questionable. This is pertinent to the subject under discussion, because, if the cord is collapsed, the placental blood is not as readily obtained.

After the cord is divided and the placental blood is released, an immediate decrease in the volume of the placenta must obviously occur. The placenta, then, instead of waiting to be shoved from the uterine wall, although passive in itself, takes an active part in its own separation. The cotyledons and their subdivisions, which interlock with the uterine musculature, suddenly shrink, permitting their escape and allowing the whole placenta to drop into the cavity of the uterus. The questions which naturally follow are, does this constitute a premature separation, and are the blood spaces left exposed so as to permit uterine hemorrhage? The answer to the first question lies in the fact that the hemorrhage incidental to premature separation is identified with well defined pathological processes which interfere with the normal contractions and retractions of the uterus. In the event that such conditions are present, rapid emptying of the uterus is the first step in the treatment. As for the second question, the uterus is either contracting or about to contract, closing off the blood spaces in the usual manner, and, if nothing is present to interfere with its contractions, it should reduce the size of its cavity at a more rapid rate than if a foreign body were present. It will be recalled that no effort is made to protect the placental site during caesarean operations.

It is commonly accepted, however, that the uterine contractions will be much stronger if a firm body, upon which it can act, is present. To consider this properly, one would have to include the whole subject of the cause of the onset of labor—certainly an interesting and much disputed issue. That the uterus will contract forcibly without the presence of a firm foreign body is proved by the intermitten pains of menstruation and the after-

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pains of the puerperium. The cause of these latter pains are certainly uterine contractions, and it is a common observation that they are very pronounced when the baby is put to the breasts, so much so that at times a sedative is necessary. This association cannot be attributed entirely to coincidence and suggests that uterine contractions are dependent far more on extra-uterine than on intra-uterine influences, especially at the time of labor. Clinically, the contractions of the normal uterus, once started, do not continue because of the presence of a foreign body. In criminal abortions, where normal uterine conditions are present, the uterus often fails to empty itself because contractions cease before the uterine cavity is empty. It may be that the placenta is more adherent at this time, but the uterus does not continue its efforts to expel it.

That the release of the blood from the placenta may cause the fatal hemorrhage of a twin is a premise not without foundation. The probability of such an occurrence is, however, extremely limited. This disaster can occur only when uni-ovular twins are present, because in only this type of multiple pregnancy do the circulations of the placentae anastomose. In multi-ovular twin pregnancies the circulations of the placentae are separate even though the placentae themselves may be physically united. The probability, then, is limited to the number of uni-ovular twin pregnancies which occur, and this has been estimated to be about one in 500 pregnancies. Twins occur about once in every hundred pregnancies and about one in five is uni-ovular. The chances are further reduced by the fact that the majority of multiple pregnancies are recognized before delivery or during the first and second stage of labor.

If these theories are basically sound, then release of the placental blood during the third stage of labor is a feasible routine procedure practically without danger and presenting the following advantages:

1. The rapid emptying of the uterus reduces the time required for the third stage of labor and permits the uterus to obliterate its cavity quicker, thus diminishing the loss of maternal blood.

2. The possibility of portions of the placenta being torn off and left adherent to the uterus is reduced.

3. In the event that pathology is present, the placenta can be removed with less difficulty and injury.

4. The third stage of labor is practically without pain.

111 *Monroe Street.*

PELLAGRA AND TUBERCULOSIS—SOME REMARKS ABOUT THE PATHOGENETIC FACTORS

By OTTO F. GECK, M. D., P. D., New York, N. Y.

To summarize our present views is a rather short task if we do not wish to discuss all the details brought forward in defense of one or other aspect of the problem, but regard only what has been washed ashore by the waves of scientific endeavors. Facts stained by theories, and theories dotted by facts are what we find. The older hypothesis[1-2] is in favor of the infectious origin of pellagra; the new investigations (C. Voegtlin[3], especially those of J. Goldberger[4] and his co-workers, are bringing into the foreground the food and vitamin factor, concerning which a recent comment of the *Journal A. M. A.*[5] says that "it seems reasonably certain that pellagra is due to a vitamin deficiency." On a third way of approach a compensation is sought for between the contrasting views in a manner of supposing that an infection is grafted upon a physical condition that is the result of a chronic qualitative and quantitative undernourishment. However, about the nature of this infection, its causative agent, its way, seat, action, etc., we are left unclear. Experiments of inoculations to animals and man were unsuccessful.[6-7]

While from the clinical side the interpretation lacks unity, the pathological post-mortem findings are such that they do not seem to hasten to aid anyone of the hypotheses above, (but sometimes suppose an additional toxemia to explain them). Either the findings might be insufficient for this purpose, or too difficult for a clinical correlation, or the reticency might be intentional, and due to the consideration that pathological facts have to be taken as basis upon which a pathological interpretation has to grow into its own as the facts become heaped up, and must thus remain a separated domain with different methods and possibilities. The more important findings[8] are: atrophy of the internal organs, of the tissues, and especially of the mucosa of the entire gastro-intestinal tract; inflammation and ex-ulceration of the intestinal mucous mem-

brane due to secondary infection; dermatitis with atrophy and hyper-pigmentation of the skin; atrophy of the cerebral cortex with degeneration and pigmentation of the ganglia cells; combined system lesions in the spinal cord which particularly involve the columns of Goll in addition to the anterior lateral strands.[9] G. A. Watson[2] found the nearly constant presence in fatal cases of the form of central neuritis of A. Meyer at the level of the Betz cells and the large pyramids, but no evidence of a peripheral neuritis, and no special lesions of the sympathetic system. A. Pentschew[10] also found these degenerative changes regularly on the giant cells of Betz, and in a lesser degree also on the motor ganglia cells of the anterior and lateral tracts. However these degenerations of the nerve cells are constant, they are not specific at all for pellagra, only the most important ones besides inflammatory, fatty changes, and alterations of the capillaries and precapillaries of the central nervous system. Pentschew draws some interesting conclusions. He does not believe in a neurotrophic property of the pellagra virus, but thinks it has a component element that is injurious to the capillaries of the brain, and causes a break down of the "barrière hemato-encéphalique." In the action of this capillary poison he sees a resemblance to that of CO, lead poisoning, or ergotismus.

We see that only vague attempts are made to decide which symptoms should be regarded as primary and of chief importance either pathologically or prognostically. For the sake of diagnosis the "dermatitis, diarrhea, depression" trias are of good service. But for the purpose of classification of the disease itself it would seem that the nervous lesions, and the symptoms due to them are outweighing the other ones, and this still more as the skin alterations are also supposed to be of neuro-trophic origin. S. R. Roberts[7] brings the picture of a patient with birth palsy, who developed the dermatitis only unilaterally on the non-paralyzed hand. The apparent atrophy of the muscles of the hands can be explained by lesions in the anterior horns. With regard to the diarrhea, Roberts also mentions the "nervous" character, however the atrophy, the inflammation, and ex-ulceration of the mucous membrane of the alimentary tract in its different portions would account satisfactorily for it. Only where these changes are not found on autopsy in patients who showed the rest of the syndrome while living, together with diarrhea, would it be permissible to assume a "nervous" dyspepsia. But he who would call it "toxic" then would not be less cautious. M. A. Rehfuss[11] is of the opinion that the functional insufficiency of the gastric mucosa in pellagra gives the impression of a toxic suppression. Anyway, *in vivo* a differentiation of the dyspepsia of the already as such diagnosed pellagrin is not practicable, though naturally it would be important to have some characteristics of the certainly pellagrous dyspepsia on-hand for aid in the diagnosis of unclear cases, since it is known that indigestion usually precedes the dermatitis. I had the opportunity last summer to make an autopsy in several cases where the clinical diagnosis was given as pellagra. They were previously treated cases (with neo-salvarsan, yeast, vitavose, etc.), and apparently improved, since it was noted that the previously existed dermatitis disappeared. In two such cases on autopsy I found a discontinuous, severe ex-ulcerative ileo-colitis. This proves that the intestinal pathology is harder to influence therapeutically, or not at all, and is probably a more fundamental change than the dermatitis. It is thus natural that diarrhea mostly precedes the dermatitis, yet our diagnosis has to wait for a later time when the alteration of the skin and mucous membrane becomes manifest. However, constipation is also common. R. H. Turner[12] has seen sixteen cases of pellagra in which the disease was associated with organic changes (mostly stricture) of the gastro-intestinal tract. Such and other accompanying aggravations of the disease might also partly account for the irregular function of the intestines. Turner doubts it that the organic trouble (i. e., the impaired nutrition) might play a rôle in the etiology of the pellagra, saying that patients without obvious organic disease who develop pellagra while taking a diet rich in fresh lean meat, make one very sceptical about accepting the current theory as to the etiology of the disease.

Neither the study of the clinical symptoms and course, nor the experiments have so far led to generally accepted results. Only the neuropathologic findings as mentioned above seem to have an unquestioned validity that would lead us to expect more explanation in the future from the neurologist than from anybody else. In what light the two contending

pathogenetic factors, the vitamin-food and the infectious factor, appear, if one had rather short and limited experiences with pellagra patients, might be seen from the following observations:

The Central State Hospital, at Petersburg, Va., where I worked for the last year, has somewhat above 2,400 exclusively negro patients, with an equal number of male and female patients. On the male side only a few pellagra patients could be seen, not more than 4 per one thousand patients, while in the female department there were constantly between 45 to 50 patients diagnosed as pellagrins, and treated accordingly, that is about 4 per cent. The number of female pellagrins is thus 10 times as high as that of male pellagrins. It is generally recognized that pellagra affects women more frequently than men. J. F. Siler and his co-workers[1] found that, out of 740 pellagrins, 528 were females, and 212 males, a ratio of 2½:1. The care for the pellagrins did not belong to my duties; I saw them only occasionally, and on the autopsy table. The pathological work was conducted along macroscopical lines because facilities for histological examination were lacking.

Since the striking difference in the number of pellagrins in the two departments could not be explained by assuming that it is a normal ratio, help was sought in other details. It would have been very important to know how many of the pellagrins could be diagnosed as such already on admission or shortly after it, and how many can be suspected as having developed pellagra in the institution due perhaps to unnoticed refusal of food, as it is common with insane patients, or to temporary seasonal fluctuations in the diet. But all patients belonging to the same class of farm and other unskilled laborers with lowest standards of living, it can be supposed that their life outside the institution on a whole did not encounter greater variations than inside. As possible influencing circumstances, but two things must be looked upon more seriously: the difference in habits, and in the tuberculosis situation of the two departments, (the diet in both being the same), even if their significance will seem not very convincing. As first should be mentioned the negro man's habit of intensive tobacco chewing. To what degree they are addicted to this habit can only be judged in an institution where life is concentrated, under close observation, and where chewing is indulged in even by those who, outside of it, would prefer smoking, but are prohibited to do it in the hospital. Women also chew occasionally, though, on a whole, far less than men. The idea occurred to me whether it is not possible that the chewing tobacco used permanently contains some protective quality that was conveyed upon those enjoying it. Though chewing tobacco undergoes during the process of its preparation a certain amount of heating and pickling, it seemed not impossible that some "P-P" agent in the sense of J. Goldberger escaped destruction, and that the more since Goldberger's "P-P" factor in yeast is thermostabile. How this principle—if present at all—should be identical with some "vitamine" does not need explanation now. In the literature at my disposal nothing could be found about the "vitamine" content of tobacco. Experiments on animals (rats) seemed a futile undertaking because it is not the "vitamine" but an eventual "P-P" factor we are interested in, and because McCollum *et al.*[13] were unsuccessful in trying to produce pellagra in rats with the deficient diet of Goldberger and Wheeler, and even the results of the artificially produced pellagra in men by Goldberger are not accepted generally as conclusive.[14] On the other hand, Goldberger and Lillie[15] produced a pellagra-like condition in rats after a seven weeks' special diet, but they themselves cannot exclude entirely possible errors and doubts. There seems to be a tendency to doubt whether conditions in animals brought about by some kind of one-sided diet are really identical with some conditions in men that we only would like to be due to the same way of feeding we use in experiments. Thus the experimental polyneuritis of birds is no more regarded as true beri-beri.[2] The easiest way to test the chewing tobacco seemed to be the human experiment on pellagrins. Upon my suggestion, Dr. F. C. Hyatt who is in care of these patients agreed to start the test; however, we could not find anymore suitable patients at that time, all standing under some other treatment already, and one more recently detected female pellagrin refused to take the tobacco. It remains for workers in institutions with a number of untreated patients large enough to allow the experiment at all, to see whether any practical worth could be attached to chewing tobacco. A positive result would mean not only economy

in prevention and treatment but would be interesting beyond it.

While the testing of chewing tobacco requires to have some belief in the food-vitamin factor, some facts arrived at by comparing the autopsy results of the hospital with the pellagra situation there would seem to bring the infectious factor into the foreground, but in the same questionable way, and with the same necessity for further observations, as in the case of tobacco. In the half year March-September, 1929, I made sixty-eight autopsies at the hospital. I wish to deal here only with fifty autopsies made up to July 1st, for which number I had the opportunity to make an analysis with a view toward the incidence of tuberculosis. All were unselected cases, twenty-eight being male, and twenty-two female patients. The age of the patients on death ranges from seventeen to eighty-four. On autopsy the tuberculous infection of the lungs alone was still apparent in twenty-one cases, i. e., in 42 per cent of the total number. Of these, thirteen were female patients (59 per cent of all the female patients autopsied), and eight were male patients (28.5 per cent of all the male patients autopsied), who had some macroscopically recognizable tuberculous lesion of the lungs (in some cases also of other organs). Tuberculosis of the lungs alone or as the chief pathology was responsible for the death of the patient in eight female cases, i. e., in 36 per cent of the autopsied female patients, and in 5 male cases, i. e., in 17.8 per cent of the autopsied male patients, while in three male cases (10.7 per cent), and in five female cases (22.7 per cent) the tuberculosis was only an accessory finding in the form of a solitary arrested focus or of a slight cirrhosis.

Although the total number of cases autopsied is not high, yet it makes a high percentage of deaths of the period mentioned (70 per cent autopsies of a number of seventy-one deaths occurred up to July), and is therefore an approximatively fair cross section of the pathological conditions figuring as death causes. The numbers show that a very high percentage of the patients who died (36 per cent of the female, 17.8 per cent of the male patients) died of pulmonary tuberculosis. The percentage of the female patients is under every point of view twice as high as that of the male patients. The occurrence of macroscopically recognizable lung lesions is 59 per cent in females, 28.5 per cent in males; the percentage for death from pulmonary tuberculosis is twice as high in females as in males; an accessory tuberculous lesion was twice as frequent in women as in men. The susceptibility of the negro race to tuberculosis is well known. To illustrate the mortality of the negro population of the State of Virginia from tuberculosis and pellagra, I wish to give the figures I received from the Virginia State Department of Health:[16]

	1927		1928	
	Urban	Rural	Urban	Rural
Estimated population (colored)	206,965	503,035	207,519	504,381
Pulmonary Tuberculosis				
Deaths	310	841	297	857
Rate*	149.8	168.9	143.1	169.9
Tuberculosis—Other Forms				
Deaths	50	83	55	82
Rate*	24.2	16.5	26.5	16.3
Pellagra				
Deaths	17	34	19	72
Rate*	8.2	6.8	9.2	14.3

*Rate per 100,000 popuation.

The figures show that while the total number of deaths from all forms of tuberculosis in 1928 was almost the same as in the previous year (1,291 and 1,284, respectively), the pellagra mortality rose from fifty-one deaths in 1927 to ninety-one deaths in 1928, corresponding to an increase of 78 per cent. The corresponding mortality figures from pellagra in the hospital are not at my disposal, so, if any comparison of the figures is permitted at all (the hospital is receiving its patients from all over the state as the only colored institution in it), we can only say that the much higher tuberculosis figures of the hospital are also connected with much higher pellagra figures—at least as far as the morbidity is concerned. It is still more striking that the twice as high percentages of the female department for tuberculosis are associated with a ten times higher incidence of pellagra, as compared with the male department. We find here in the female department the tree of pellagra growing up in the shadow of the tree of tuberculosis. Why the male side has less pellagra than would be proportionate is not clear, unless we take refuge to the chewing tobacco, or to the fact that the male patients have more outside occupation there

which lessens naturally the time of close contact, and makes again for more resistance, if we regard things from the angle of infection. It seems to me the fact is very remarkable that an extensive tuberculous infection in a separated and closed group of patients exists at the same time together with a high pellagra incidence. The doubtful, and not yet diagnosed pellagra cases, might certainly increase the percentage. How high, on the other hand, is the actual incidence of tuberculosis in this female group cannot be said. Those detected with an active process are naturally separated. But the 36 per cent mortality would point toward a considerable morbidity. A new chest examination of all the female patients has been taken into consideration, but was not carried out. There is no doubt thus that undiagnosed pellagrins and tuberculotics happen to live together. In this connection, it is interesting to read an older statement of J. F. Siler,[1] who says that he studied pellagra in the Peoria State Hospital when it had 175 cases (8 per cent) pellagra of the inmates, and during the same period seventy-five inmates with active symptoms of tuberculosis, also an epidemic of amebic dysentery.

The close connection in time and place between tuberculosis and pellagra, as indicated by our example, is naturally suggestive for the supposition that some relation must exist in the etiologic factors and pathogenesis of both diseases. The contributory rôle of inadequate food and of lack of vitamins is mostly considered as important in the genesis of tuberculosis. Their importance is also clear in the therapy of both conditions. And it would be convenient not to go further when seeking the cause of the coincidence of pellagra and tuberculosis in the same place, as to the food-vitamin starvation that in one case facilitates the tuberculous infection, and in the other the development of pellagra. I do not wish to make further use of the food-vitamin factor in this combination because it seems well understood, although it leads only back to a theory that has been met by everybody, but to no real explanation. However, another way is also possible in this speculative field in which some kind of answer is wanted for the why of the coincidence.

The lower figures for the negro population of the entire State of Virginia as regards tuberculosis and pellagra show that conditions for the group of hospital inmates under consideration are different, and that some aggravating cause is at work that increases both the pellagra morbidity, and the tuberculosis mortality. We can assume either that any patient in the group has no other chances to contract a new tuberculous infection but from somebody in the group. But a flare-up of an old latent infection is naturally also possible; also that the patient had a more or less active process all the time since commission that dates back similarly to an earlier outside infection. As regards pellagra we also do not know the exact onset, and whether at a given moment we have to deal with a first attack, or a chronic or subchronic condition, since the anamnesis of the patients of our group mostly cannot be had, nor clear details about the course of the disease. Also, many might be sent in on account of psychotic symptoms due to pellagra. However, some more or less satisfactory classification will always be feasible if long time observations are on hand. After the number of the doubtful patients is omitted, there still will remain the class of those whose pellagra and tuberculous reinfection (or reactivation) originates inside the hospital, and these ought to be peeled out of the mass and isolated if we want to search for any mutual influence of the two diseases upon each other with more hope for success. At the present this cannot be done, and I am unable to say how large this number is in our case.

About the resistance of those who at a certain moment have neither of the two diseases, we cannot form a clear opinion, since later they still can fall sick from any of the two diseases. Certain it is that in the whole group there is always a majority which dies neither from tuberculosis nor from pellagra, and must be regarded as having had a successful resistance through many years against both. Scattered in the papers of older authors one finds expressed the interesting view that pellagrins are apparently "immune" against tuberculosis. S. R. Roberts[7] says that rare cases are associated with tuberculosis. The big complex of questions concerning the immunity against tuberculosis should not be rolled up here, especially the "natural species resistance" in man as something opposed to "acquired" resistance should not be debated.[17] It has been doubted for long whether "acquired" resistance against the tuberculous infection exists. H. Selter[18] states that the immunization of cattle has been successfully accomplished in some cases, but

it lasted only for 2 to 3 years. Immunity resulted only on those animals in which, after the preliminary treatment with human bacilli, a tuberculous diseased focus developed. But if such foci produced through human bacilli heal completely in cattle, what conditions the simultaneous disappearance of the immunity? In guinea pigs it was also possible to produce a doubtless tuberculous immunity. The immunity of an infected animal, however, diminishes or entirely disappears at the same moment when the tuberculous infection becomes active. Applied to man, he says that on the basis of these experiments we are justified to regard man as immune in the moment of transition to healing, and as long as there exists a tuberculous focus. And as long as this exists the immunity will be the strongest. But even then we have to deal with a labile condition that can be injured or broken down by various causes. In other words, not everybody who is tuberculous is also immune; but everybody immune against it must have to a certain degree tuberculosis.

If we agree with this conception of tuberculous immunity, and accept for a moment without further criticism the alleged rarity of tuberculous infection or the immunity against it in pellagrins, they become only intelligible if we assume that pellagrins as a rule suffer from a tuberculous infection. And, if we search for it, there is only one thing that we can take as the protective tuberculous infection to satisfy our need for it, the pellagra itself. It certainly sounds strange that pellagra should be nothing else but a specific form of tuberculosis, even if offered as a mere speculation; and even still more that this special form of infection, due to its being characterized in fatal cases most constantly by anatomical changes of the central nervous system, should be rather a "neuro-tuberculosis" than anything else. The term of a filtrable form of the tubercle bacillus (ultravirus) could be made serviceable for our purposes; however, it is still much under discussion itself (A. Calmette et al.[19]—H. E. MacDermot[20]), and would give no immediate results. The postulated neurotropic tendency of the tuberculous virus would not present such a difficulty that cannot be overcome at the present status of our views on this subject if we remember the recent changes in our conception of the neurotropism of the Spirochaeta pallida. It is not believed anymore that there is a special variety of the Spirochaeta producing a special virus nerveux. The possibility of this virus nerveux has been dropped even as regards the pathogenesis of neurolues (F. Wirz,[21] G. M. Lewin[22]). The idea of the neurotropism of the syphilitic virus experienced a new formulation by I. L. Kritschewski and E. S. Heronimus,[23] who found that the strains of the Spirochaeta pallida cannot be divided into neurotrope and dermotrope because the tropism of the Spirochaeta to the central nervous system is absolute. Evidences that the tuberculous virus also possesses this absolute kind of tropism are not entirely missing, since it is known that in tuberculosis the same spinal cord degenerations occur as in pellagra, or in leucemia, pernicious anemia, and cancer. But, on the whole, there is no explanation at my disposal to clear it up how could it be made more plausible that a tuberculous pathogenesis must be in play in pellagra, excepting the peculiar coexistence in a secluded group of patients of a high pellagra and tuberculosis percentage, the alleged "immunity" of pellagrins against tuberculosis, and the consequence this immunity involves. In the end, we can say as much that it is not proved at all that pellagra and tuberculosis as a rule exclude each other in the same person. But if we believe in it, we can also believe that the cause is that both are tuberculous in nature, and pellagra yields an apparent immunity against the known clinical forms. Or we can say that pellagra and tuberculosis are different nosological entities, and their mutual absence is based upon hidden interrelations. We will not then know more. But we can also disregard the spare remarks on "immunity," and draw no consequences from this side as to their common origin. In this event, only the coincidence of a high pellagra rate with a high tuberculous mortality remains that could move us to try to see what has a common food deprivation to do with both, or some unknown other conditions. I wanted only to put up my questions regardless whether they look sufficiently promising to be stimulating for further work in this direction or not. But the constellation of things threw them up, and lends them a limited justification.

Summary

1. At the present stand of our knowledge about pellagra, neither the dietary factor in

the pathogenesis can assert a universal recognition, nor can it be said that the infectious hypothesis is entirely rejected.

2. In both directions further experiments are suggested in such a special manner as circumstances in a group of observed patients make them desirable. On the one hand, chewing tobacco could be tested for eventual pellagra-preventive properties. On the other hand, the collection of data is needed to give elucidation to the questions how far are pellagrins "immune" against pulmonary or other tuberculosis, and whether pellagra itself is not possibly a special (nervous) form of tuberculosis.

Acknowledgments: My sincere thanks are due to Dr. Ennion G. Williams, State Health Commissioner, Richmond, Va., for supplying me with the statistical data under sixteen; also to Dr. F. C. Hyatt, Petersburg, Va., for his readiness to support the experimental idea in his pellagra department.

REFERENCES.

1. J. F. Siler, P. G. Garrison, and W. J. McNeal: *J. A. M. A.*, 63:1090. September, 1914.
2. L. Rogers: Recent Adv. in Trop. Med. Chapter, XXIII. 1928.
3. C. Voegtlin: *J. A. M. A.*, 63:1094. September, 1914.
4. J. Goldberger: *Medicine*, 5:79. May, 1926.
5. *J. A. M. A.*, 93:1149. October, 1929.
6. C. H. Lavinder, et al.: *J. A. M. A.*, 63:1093. September, 1914.
7. Stewart R. Roberts: Internat. Clinics, Vol. 1, 39th Series, 1929.
8. Struempell Seyfarth: *Lehrbuch d. spez. Pathol. & Ther.*, Vol. 2, p. 361, 1928.
9. E. Kaufman: Pathology, Vol. 3, p. 2003, 1929.
10. A. Pentschew: *Zeitschr. f. d. gesamte Neurol. & Psych.*, 118:17-48, 1928.
11. M. A Rehfuss: Stomach, p. 893, 1927.
12. R. H. Turner: *Amer. J. Trop. Med.*, 9:129, March, 1929.
13. McCollum, Simmonds and Parson: *J. Biol. Chem.*, 38:125, 1919.
14. J. S. McLester: Nutrition and Diet. P. 300, 1927.
15. J. Goldberger and R. D. Lillie: Publ. Health Rep., 41:1025, May, 1926.
16. Statistical Figures from the State Dept. of Health: Pers. Comm., Richmond, Va.
17. A. R. Rich and H. A. McCordock: *Bull. J. Hopkins*, 44:273, May, 1929.
18. H. Selter: *Muenchener Med. Wochenschr.*, 76: 1498, September, 1929.
19. A. Calmette, J. Valtis, A. Saenz: *J. A. M. A.*, 92:2085, June, 1929.
20. H. E. McDermot: *Can. Med. Assn. Jour.*, 20:42, January, 1929.
21. F. Wirz: *Derm. Zeitschr.*, 53:726, April, 1928.
22. G. M. Lewin: *Derm. Wochenschr.*, 85:1419, October, 1927.
23. I. L. Kritschewski and E. S. Heronimus: *Klin. Wochenschr.*, 7:2472, December, 1928.

Neurological Institute of New York,
706 *West* 168*th Street.*

Woman's Auxiliary, to the Medical Society of Va.

The Executive Board, Woman's Auxiliary to Medical Society of Virginia,

Held a meeting in Petersburg, May 20th, for the purpose of electing a president-elect to fill the vacancy caused by the death of Mrs. Edwin J. Nixon, of Petersburg. Those present were Mrs. F. W. Upshur, Richmond, president, Mrs. Southgate Leigh, Norfolk, Mrs. J. Allison Hodges, Mrs. W. B. Porter, Mrs. N. Thos. Ennett, and Mrs. Joseph Bear, of Richmond, and Mrs. Meade Edmunds, of Petersburg.

Mrs. J. Allison Hodges, who was unable to accept the presidency of the Auxiliary several years ago on account of illness in her family, was elected to fill the vacancy and will thus become president at the next annual meeting. The Program for the Fall meeting was then discussed, following which the visitors were entertained at luncheon at the Country Club.

Delegates appointed to represent the State Auxiliary at the Detroit meeting of the National Auxiliary were Mrs. R. U. Burges, Norfolk, and Mrs. J. W. Preston, Roanoke; alternate, Mrs. Jos. D. Collins, Portsmouth.

The Woman's Auxiliary to the Richmond Academy of Medicine

Was asked by the Academy to help to decorate a float for Adventure Day parade held in Richmond in May. The float represented Dr. Walter Reed's experiments with yellow fever and won the silver cup as the best float in the educational division of the parade. The doctor and the nurse who took part in the tableau were both with Dr. Reed in Cuba at the time of his work.

Study Programs for County Auxiliaries.

In our May issue, page 121, we explained the STUDY PROGRAMS FOR COUNTY AUXILIARIES which have been prepared for the Woman's Auxiliary to the American Medical Association. These programs especially considered COMMON DEFECTS IN CHILDREN. In June, the subjects discusssed wer "*Nose and Throat*," "*Eyes*" and *Teeth*." The following is a continuation of the subject with a discussion of other defects.

(*Continued from page* 193)

WHAT IS BEING DONE BY HEALTH AGENCIES, OFFICIAL AND UNOFFICIAL, FOR THE DISCOVERY OF PHYSICAL DEFECTS IN CHILDREN?

The Summer Round-Up of the Children carried on by the National Congress of Parents and Teachers is one of the most wide spread attempts to solve this problem. The work as planned and as being carried on has the hearty approval of the American Medical Association. We feel that in discussing this work it would be well to emphasize the importance of having the work done with the cooperation of the County Medical Society. It ought to be made clear in this connection that those who are able to pay for medical services should not expect to receive without any charge the services that physicians are quite willing to render to those who are unable to pay.

The following is taken from the leaflet, "Is It Well With the Child?", prepared by the National Congress of Parents and Teachers:

The home can make no greater contribution to the school than a scholar mentally and physically prepared to take advantage of what the school has to offer it.

In this belief the National Congress of Parents and Teachers inaugurated in 1925 a nation-wide Campaign, "THE SUMMER ROUND-UP OF THE CHILDREN," to send to school. in the entering grade, a class of children 100 per cent free from remediable defects.

The response, not only within the Congress membership but from educators, health workers and the medical and dental professions, and the results obtained in forty-four states thus far included in the registration, have proved beyond question the value of the undertaking.

Based upon the remarkably fine pre-school health work done by state officials, particularly in California and Georgia, the Campaign promoted by the Congress claims but two original features beyond its name: (1) it secures correction of defects and demands a second examination in the autumn, with a checking up of the defects *corrected;* and (2), it stimulates parent pride to put parent power to work, so that the children of Congress members may be a credit to the homes from which they come.

While establishing and maintaining the closest and most helpful cooperation with state, county and local health agencies, the Summer Round-up also engages the personal activity of parents and guardians in doing, or helping to do, that which has too frequently been held to be the business of the school or of the health authorities. In state or agency health work, as a rule, those most easily reached are those who must look to the more or less "benevolent" hygiene teaching; or when a wider range is covered, it is through the school with no direct contact with the home.

Moreover, because of the extensive field to be covered by the professional health worker, only in a few instances can this teaching be carried beyond a first examination and recommendations as to care and treatment. It has seldom been found possible to maintain the work over a period of months or to check the results before the opening of school, so much of the valuable service rendered by health authorities goes to waste for lack of time, money and personnel to follow it through to a satisfactory conclusion.

It is this gap which the Summer Round-Up of the Children is designed to fill. Much fine cooperative effort is being expended by welfare and civic organizations of various types, on philanthropic lines and with excellent results, but the special method of the National Congress of Parents and Teachers cannot be duplicated, because of the unique position held by this organization, working in and through the schools and thus being able, through its 20,000 units, to secure action *by* the people instead of *for* the people,—a course which is necessary if the results are to be permanent.

When parents become fully educated to their responsibility for their children, and realize that not only at the pre-school period is an inspection desirable but at periodic intervals from the time of birth onward, then the Round-Up as a special activity will become unnecessary. Children will be examined at regular intervals by the family physician and parents will pay an adequate fee for the service of keeping them well. But we have not arrived at the time when preventive medicine is fully understood.

Enlistment in the Campaign is open to all associations in membership with the National Congress. This restriction is made, not as limiting the work of pre-school examination or confining it to any one group, but in order that it may be possible to ascertain exactly the corrective value which this type of or-

XUM

ganization, operating on a system different from that of any other, may possess. The member units of the Congress are urged to make this Campaign an annual feature of their program.

When the final report shows compliance with the National Requirements and a correction of defects, the association receives a certificate signed by the U. S. Commissioner of Education and the President of the National Congress of Parents and Teachers.

Fear has been expressed by some members of the medical profession that this movement might introduce the entering wedge for *free medical and dental treatment.* It should be clearly understood that this idea is exactly contrary to the principles of the Round-Up, which is absolutely *opposed to free medical or dental care* in this connection. All children are referred to their family practitioners for correction of defects discovered, except in cases of actual financial inability, when the Red Cross, the Anti-Tuberculosis Association or some other benevolent agency may be asked to assume the responsibility and provide for the necessary professional service.

A free medical and dental *inspection* is recommended for this reason: the Summer Round-Up is a challenge to the local parent-teacher or pre-school association to perform a great service for its school, and its major object is a class 100 per cent free from defects. If the physical examination or inspection which the Round-Up requires should be made a matter of expense to the parents, there are many whose children seem well—or well enough—who will hesitate to spend for a visit to a doctor the money which would supply many small comforts or pleasures; and therefore only the children of those financially able to disregard the cost, or the children of the poor who may be gathered into the free charity clinics, will benefit. But it has been clearly demonstrated that when, through the free *examination* held in the school for *all* children, parents are made aware of defects in their boys and girls, *they no longer hesitate to seek the remedy, but place them at once under professional care.* When this arrangement is clearly understood, there is rarely any unwillingness on the part of medical or dental men to give their services for the physical inspections.

Another point should receive attention. Whenever possible, the steps to secure the co-operation of doctors and dentists should be taken through the county medical and dental societies, with which professional men in good standing are usually connected. These official groups should be requested to assign to this duty the men best qualified to examine children, and through this channel the best service will be assured. Some county associations, however, are not well organized and do not function efficiently, and in such cases it will be necessary to apply directly to the local doctors and dentists for assistance.

The American Dental Association says that upon the condition of the first teeth depends in large measure that of the second set and consequently the whole condition of the child. When dentists consider it unnecessary to give the needed attention to the first teeth, parents should insist upon the proper treatment. The four years of the Campaign have shown that dental defects are present in an appalling majority of our pre-school children, and especial emphasis should be laid upon their correction.

The Summer Round-Up has prepared an examination form which does not claim to be exhaustive, but which covers all the points necessary to be considered in determining the fitness of a child to enter school. Drawn up by three members of the Advisory Committee whose work fits them particularly for such a task,—*Dr. John M. Dodson of the American Medical Association*, Dr. LeRoy A. Wilkes and Dr. Harold H. Mitchell of the American Child Health Association,—this form requires a thorough examination such as should occupy from twenty to twenty-five minutes. If local health authorities desire to use the forms provided by their State Departments of Health, this may be done, provided that the points called for by the Round-Up Blanks are transferred to them, in order that the returns to the Campaign Office may be complete and the national statistics may be correctly compiled.

The growth of the Summer Round-Up from a group of 102 units in twenty-one states in 1925 to an enrollment of between 2,500 and 3,000 associations in 1928, in forty-four states and the Territory of Hawaii, indicates that its field will eventually be limited only by the extent of the Congress organization. If every parent-teacher and pre-school association in Congress membership, recognizing this great opportunity for service to home, school and community, will assume this responsibility, then to the question, "Is it Well With the

Child?" they may answer as with one voice, "It is well."

The following brief tabulation will show some of the results accomplished:

	1925	1927	1928
Number of children examined---	1129	13768	19048
Number of Defects Discovered--	2693	17857	39346
Number of Defects Corrected----	599	6262	11898

(*To be continued*)

Correspondence

An Open Letter to the Medical Profession of Virginia.

We have received the circular letter of our worthy State Health Commissioner, Dr. E. G. Williams, under date of May 8th, in which he states as follows: "The 1929 records for typhoid and paratyphoid fever were the most creditable this State has ever shown. In 1913 there were 6,368 cases and 709 deaths; in 1929, 853 cases and 121 deaths." It will be noticed that in 1929 there were *fewer* deaths, yet the percentage of mortality was *increased*. that is, 11 per cent in 1913 and 14 per cent in 1929.

In 1927, I published a paper on Typhoid Fever in the *Medical Review of Reviews*, of New York, in which I showed that in Virginia in 1925 there were 2,099 cases and a mortality of 14 per cent. It will thus be seen that in Virginia the mortality for this disease in 1913 was 11 per cent, in 1925, 14 per cent, and in 1929, 14 per cent,—no let up in mortality. This is a bad showing. We ought to do better. Now let us all pull together and see if we can make such a record for 1930 as will please our Health Commissioner and reflect credit on our State.

The following is an extract from a paper by the writer, published in the *Medical Review of Reviews*, December, 1927.

I would be glad to send a reprint of the paper from which this abstract is taken, giving full details of treatment, to any physician who may wish it.

Fraternally yours.

CHARLES S. WEBB, M. D.,

Bowling Green, Va.

May 29, 1930.

ABSTRACT OF DR. WEBB'S PAPER WHICH APPEARED IN MEDICAL REVIEW OF REVIEWS

Why not stamp out typhoid fever? It is a preventable disease. There is something wrong when there is yet so much typhoid fever in our country. The official report of the U. S. Public Health Department for 1926 is not yet complete, but I have before me the report for 1925, and in that year there were in the United States 46,227 cases of typhoid fever, with 9,726 deaths, over 21 per cent. Cases reported for New York State, 2,900, mortality 13.8 per cent; cases reported for Virginia, 2,099, mortality 14 per cent. This is appalling, just think of it, taking the country as a whole we have 46,227 cases of this preventable disease, and about one in every five dead. We ought not to have so many cases, and surely the mortality rate is too high. It may be the poverty of the surroundings, it may be the lack of suitable nutrition, or the lack of good nursing, or it may be the fault of the medical profession. Let us realize that we have a serious disease to deal with, and one that requires patience and careful watching. My personal experience with this disease in the past twenty years (or more) has been 120 cases with two deaths, or one and two-thirds per cent. Both fatal cases were old men with enfeebled digestive organs. One died two weeks after the fever left him because he could not digest anything at all in any shape or form. The other old man died very much the same way, in the fourth week. These cases embraced all ages, from early childhood to old age, both sexes, black and white. Typhoid fever is a self-limited disease and if you can keep the patient alive long enough he will get well.

The great desideratum, then, is to keep the patient alive. There is no better guide than the summing up by Loomis in those wonderful lectures at New York University. Here they are, as he repated them with great emphasis: "Keep down the temperature, keep up the nutrition, watch the convalescence."

KEEP A-TRYIN'.

If you strike a thorn or rose
Keep a-wishin'!
If it rains or if it snows,
Keep a-wishin'!
'Taint no use to fret and whine
When the fish ain't on your line.
Bait your hook and brace your spine,
Keep-a-fishin'!

—LONGFELLOW.

President's Message

Under the leadership of the American Medical Association practically the whole Medical Profession of the United States has been organized on the basis of the county unit. These county units in each state are grouped together in state associations, but the unit still remains the county.

As a whole this plan of organization is working very well, but in some cases, as is notably true in Virginia, some of the counties are so small, and there are so few doctors practicing within their boundaries, that it is impossible to maintain a well-functioning scientific society. To rectify this condition the constitutions of the state associations allow a grouping of county societies more especially for scientific and educational purposes. This, however, does not prevent the counties from having local societies for business purposes, even though such counties be grouped otherwise in a scientific association.

I feel that every one of us agrees that such a plan is necessary in the State of Virginia. Indeed, we already have many of these group societies, which cover the larger part of the state. These group societies, however, have been formed for different purposes and at times one county may be included in several group societies.

Certain of these group societies, such as the Post-Graduate Medical Society and the Clinch Valley Medical Society, allow their component counties to have individual business organizations and individual delegates to the Medical Society of Virginia, although they meet together for scientific and educational programs. I feel that such organizations might well be formed to cover the whole of the State of Virginia, making use of existing group societies which, however, will have to be changed at times in order to conform with the rest of the state.

It is furthermore recognized that the group societies should be as elastic as possible. Thus if one county feels that it could do better work with the next-door group rather than with the group with which it was originally placed, I can see no reason why such a county should not be allowed to change. The same plan of organization will not suit all group societies. Thus the two societies which we are using as models have different plans. The Clinch Valley Medical Society only meets twice a year and has Educational Clinical programs at every meeting; the Post-Graduate Society meets in turn in each of its component counties, but furnishes papers from its own members to make up its program. Other societies, such as the Southwestern Virginia Medical Society, combine these two features, having their guests in the evening and having papers from their own members the next morning. There is no reason why any one of these plans, or further modifications of them, should not be used in group societies.

It is proposed to have such a plan of reorganization discussed at the next meeting of the Medical Society of Virginia. This will not in any way change the Constitution, which allows the grouping of county units. It is, however, very necessary to have as full a discussion as possible by representation covering the whole State of Virginia. I am, therefore, urging every local society in Virginia to see that it is represented by at least one delegate and alternate in our House of Delegates. The plan to be discussed is only a tentative one, and it is most necessary that each county have the chance to express its wishes in regard to this grouping. It is impossible for the President of the Society to know all local conditions, but he is desirous of forming a plan which will be as permanent as possible, and be of the greatest benefit to the individual doctors throughout the state. To do this efficiently the doctors from all sections should criticize the plan and tell how it can be improved so as to meet their local needs.

Charles R. Grandy, M. D.,
President, Medical Society of Virginia.

Department of Clinical Education

OF THE MEDICAL SOCIETY OF VIRGINIA

Continuation Education for Practitioners.

A considerable amount of work has been done during the past month looking to the enlargement and perfection of educational and clinical courses for practitioners for the future meetings scheduled for the early Fall and Winter.

One of the subjects now being thoroughly considered and digested, and which will be submitted soon to the members of the Department for their approval, is an individual plan of instruction in the newer methods of prenatal and post-natal care of expectant mothers.

If the proposed plan is approved, it will be tried out in two or more strategic counties, if desired by the local physicians, and if successful, will then be applied elsewhere as occasion and necessity suggest.

Scheduled Meetings.

Arrangements are now being completed for holding clinical meetings during the Summer and the first of these meetings will be held in Harrisonburg, Fredericksburg and in the Northern Neck.

——At 6:00 o'clock on Tuesday, July 15th at Emporia, immediately after a dinner served in the American Legion Hall, the Post-Graduate Medical Society of Southern Virginia, Dr. M. H. Tredway, of Emporia, President, will hold a conference clinical meeting. This Society is composed of the counties of Nottoway, Dinwiddie, Prince George, Greenesville, Brunswick, Surry, and Sussex.

——In September the Clinch Valley Medical Society, Dr. J. B. Wolfe, Coeburn, President, will hold its Fall meeting.

——On Tuesday, September 30th, beginning at 2:00 P. M., a clinical meeting will be held at the time of the dedication of the new Medical Arts Building in Petersburg, also under the auspices of the Post-Graduate Medical Society.

——On October 2nd, 3rd, and 4th, the University of Virginia will give a course of Post-Graduate clinics.

——On Tuesday, November 18th, beginning at 2:00 P. M., a clinical and scientific meeting will be held at Burkeville with Dr. W. H. Venable, Superintendent and Medical Director of the Piedmont Sanatorium, and the Post-Graduate Medical Society cooperating.

It is probable that in addition to the scientific papers, there will be an exhibition of serial X-ray plates illustrating the various lesions of pulmonary tuberculosis, and their progress both for better and for worse, and also plates illustrating the influence of artificial pneumothorax and phrenectomy on the diseased lung.

As this is the first tubercular clinic that has been opened to the whole profession in this section, although several have been held by the Staff of the Sanatorium for negro physicians, it is expected that this demonstration of the latest methods and procedures in the treatment of tuberculosis will be unusually valuable.

——More complete and detailed information as to all of these clinical meetings will be published later, and great attention is being paid to the arrangement of the various programs, so that they will be different and practically instructive.

The general profession is most cordially invited, and it is hoped that, as the meetings have been arranged for afternoon and night sessions, due to the season of the year, there will be a large attendance.

Report of the Committee on the Grading of Nursing Schools.

Because this report has just been issued, and because of relations existing between Doctors and Nurses, it has been thought that a summary of the findings might be interesting at this time.

The Committee, William Darrach, Chairman, presents a few of the outstanding findings from the two year study of nursing economies, which it carried on in order to secure a fact basis for grading schools of nursing.

The report considers in some detail the production, education, distribution and pay of nurses.

Among other statements is the fact that there are now too many nurses, as follows:

"The supply of nurses is increasing far more rapidly than is the general population. In the United States in 1900 there was less than one

graduate nurse in active practice to every six thousand people. Today there is more than one graduate nurse in active practice to every six hundred people.

"The reason for this amazing increase is that unlike any other professional institutions of which we have record, hospitals prefer student service to graduate service. In their effort to secure a steadily increasing supply of untrained student material they send away over 25,000 new graduates a year; the greater part of whom must try to earn their livings in the already overcrowded field of private duty nursing. The demands for nursing have also increased, and rapidly, since 1930, but the growth in demand lags behind the growth of supply. . . . There is unemployment in nursing. With the exception of periods of epidemic, there has apparently been unemployment in nursing every year for the past five years, and every year it is getting worse. Nursing has become an over-crowded profession."

In speaking of the annual output, it says, "It is because the training school was successful that its development has been extraordinary. The contrast between medical schools and nursing schools is illuminating. In 1880 there were 100 medical schools; in 1890 there were 133; in 1900 there were 160. Shortly after that time the medical profession cooperated in a nation-wide survey of medical schools, which attracted attention to the importance of higher standards. The result was an immediate and widespread campaign for the purpose of raising the quality of medical education.

"While apparently there was no concerted attempt to reduce the numbers of medical schools, that was, in fact, one of the results. The numbers of schools decreased steadily until 1929 there were only 76, compared with the 160 of 1900. Nursing schools, on the other hand, showed a totally different picture. In 1880 there were 15; in 1890, 35; in 1900, 432; in 1910, 1,129; in 1920. 1,775; and in 1927 the number had risen to 2,247. During the past two years, apparently, the number has slightly decreased, so that in the spring of 1929 there were apparently about 2,205.

"The numbers of graduates have kept pace with the numbers of schools. In 1880 there were a little over 3,000 graduates from medical schools. By 1900 there were over 5,000. Then came the reorganization of medical education, and the numbers of graduates dropped rapidly until, in 1920, there were barely 3,000, and in 1929 the number had again increased to about 4,400. The Commission on Medical Education estimates that the number of graduates each year from now through the next forty or fifty years will probably remain at just about the 4,000 mark.

"In nursing in 1880 there were 157 graduates for the entire country. In 1890 there were 471; in 1900 well over 3,000; in 1910 over 8,000; in 1920 about 15,000; in 1926 almost 18,000. In 1929 there were 25,300. The numbers of nursing graduates are rising with startling rapidity. The rate is far beyond that of the increase in the general population."

The Contents of This Report Are Summarized as Follows:

"1. The supply of active graduate nurses in the United States is increasing far more rapidly than the general population.

"2. There is serious unemployment among nurses. This unemployment grows worse yearly.

"3. Yet there are shortages of nurses in some fields.

"a. Geographic distribution is uneven. Nurses tend to live in cities and avoid the country. They are apt to be found near good hospitals, and not apt to be found in regions where hospital facilities are lacking.

"b. There is a scarcity of nurses properly prepared for nursing in certain specialties—as mental, contagious, heart, obstetrics, etc.

"c. There is a shortage of nurses who have had systematic preparation for executive and teaching positions in institutional or public health nursing.

"4. Earnings of nurses are low. They are lower in private duty than in either of the other two main fields. In private duty there is practically no opportunity for professional advancement or increased pay.

"5. Physicians want intelligent nurses. They prefer graduate nurses to practical nurses. They prefer well trained nurses to poorly trained nurses.

"6. Educational standards in nursing are rising, but educational standards in the community are rising much more rapidly. If nursing is to attract women of the so-called professional type, it must set its educational standards high enough so that it can compete for

students with the other professions now open to women."

Information.

All members of the State Society are requested to write for any information desired on any subject relative to these Extension Courses in Graduate Medical Education, either to the Acting Executive Secretary, Mr. George W. Eutsler, P. O. Box 707, University, Va., or to the Chairman of the Department of Clinical Education, 5 East Franklin Street, Richmond, Va.

Proceedings of Societies

The Fauquier County Medical Society

Was entertained by Dr. George H. Davis and Dr. M. B. Hiden, at the residence of Dr. Davis, Warrenton, Va., on May 26th, at 8 P. M. Dr. Wade C. Payne, President of the Society and Chief of Staff of the Fauquier Hospital, presided.

Dr. J. Elwood Knight, Councilor of the Medical Society of Virginia, made the speech of the evening. His subject was "County and State Medical Societies and Clinics for Physicians." He told us of the wonderful work that these societies have done and are doing and their program for the future. His speech was very instructive and well delivered and in every way worth while. His talk was discussed at much length by Drs. Richard Mason, M. B. Hiden, J. Frank Folk, E. N. Lillard, J. T. Sprague, J. R. Allen, Prentiss Bailey.

Dr. Knight moved to have the By-laws revised. This was seconded by Dr. Lillard and was passed. Dr. Payne appointed Dr. John T. Sprague, Dr. J. R. Allen, Dr. J. E. Knight the committee to revise the By-laws.

Dr. Sprague moved to have the program of each meeting published to the doctors well in advance of the meeting. This was seconded by Dr. Hiden and passed.

Dr. Sprague then made a speech, full of constructive criticism, on the use of the hospital as a clinic and a teaching center. This was well received and was discussed by a large number of the doctors. Dr. Payne in discussing this matter, made an excellent speech on tularemia.

Dr. J. Frank Folk spoke well on how our medical meetings should be conducted.

Dr. Payne and Dr. Allen discussed taking Prince William County into this society, but this question was deferred until the next meeting, to allow further consultation with the physicians of Prince William.

Dr. J. R. Allen was elected delegate and Dr. George H. Davis was elected alternate to the meeting of the Medical Society of Virginia in Norfolk, Va., next October.

The local society voted to have its next meeting on the fourth Thursday in June, at the residence of Dr. Wade C. Payne Haymarket, Va.

The members of our society were much pleased to receive an invitation from Mrs. Katherine Bowman to have a meeting at her residence on Winchester Road, Warrenton, Va. This invitation was accepted by a hundred per cent vote. It was then planned to make the meeting at Mrs. Bowman's one of special interest.

It was moved by Dr. Richard Mason that this society invite ex-Senator James W. Wadsworth, of New York, to Warrenton, to speak on Prohibition and the Eighteenth Amendment. This was seconded by Dr. M. B. Hiden and was passed after much favorable discussion.

Following adjournment of the business meeting, an excellent supper was served.

J. R. Allen, *Secretary.*
M. B. Hiden, *Asst. Secretary.*

The Northampton County Medical Society

Held a meeting on June 3rd, under the presidency of Dr. S. K. Ames, of Cape Charles, at which time, Dr. J. W. Bradshaw, Director of the Accomack-Northampton Medical Unit of the State Department of Health, read a paper on "Infant Mortality in Northampton County." At the business meeting which followed, Dr. Bradshaw was elected to honorary membership in the Society, and the following officers were elected for the ensuing year: President, Dr. H. L. Denoon; vice-president, Dr. W. T. Green, Jr., and secretary-treasurer, Dr. W. Carey Henderson. All of the officers are of Nassawadox. Drs. W. J. Sturgis, Nassawadox, and G. W. Holland, Eastville, were elected delegate and alternate, respectively, to the Norfolk meeting of the State Society. It was decided that the next meeting would be held July 2.

The Norfolk County Society

Held its annual meeting June 2nd, under the presidency of Dr. C. Lydon Harrell. Dr. Franklin D. Wilson, succeeded to the presidency; Dr. Harry L. Myers was elected vice-president, and Dr. Lockburn B. Scott was re-elected secretary-treasurer. The following were elected delegates to the Norfolk meeting of the State Society: Drs. C. Lydon Harrell, P. St. L. Moncure, Walter B. Martin, F. D. Wilson, Julian L. Rawls; alternates, Drs. N. G. Wilson, C. J. Andrews, Jas. H. Culpepper, W. P. McDowell, R. C. Whitehead.

At the last regular meeting of the Society until October, on June 23rd, there was a symposium on the Complications of Pregnancy. Those discussing the various phases of this subject were: Drs. Walter P. Adams, C. Lydon Harrell, Clayton W. Eley, James W. Anderson, F. C. Rinker, Bryant E. Harrell, and N. G. Wilson.

The Roanoke Academy of Medicine,

At is meeting on June the 2nd, selected the following delegates and alternates to represent the Academy at the meeting of the State Society in October: Delegates, Drs. T. J. Hughes, W. R. Whitman, and W. L. Powell; alternates, Drs. J. B. Nichlls, A. P. Jones, and Alvah Stone.

Dr. J. D. Willis is president of the Academy and Dr. Charles A. Young secretary.

Book Announcements

Clio Medica. A Series of Primers on the History of Medicine. **The Beginnings: Egypt and Assyria.** By WARREN R. DAWSON, F. R. S. E., Fellow of the Royal Society of Medicine, of the Society of Antiquaries of Scotland, and of the Royal Anthropological Institute of Great Britain and Ireland. Editor: E. B. KRUMBHAAR, M. D. Paul B. Hoeber, Inc. New York. 1930. 12mo. of 86 pages. Cloth. Price, $1.50.

Report on Fifth International Congress of Military Medicine and Pharmacy. London, England, May, 1929. By COMMANDER WILLIAM SEAMAN BAINBRIDGE, M. C. F., United States Naval Reserve. Member of Permanent Committee, Delegate from the United States. Composed, Printed and Bound by The Collegiate Press, George Banta Publishing Company. Menasha, Wis. Octavo of 154 pages. Cloth. Illustrated.

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the Fifty-first. Philadelphia. Printed for the College. 1929. Octavo of 381 pages. Illustrated. Cloth.

The Truth About Medicine

In addition to the articles enumerated in our letter of April 25th, the following have been accepted:

Eli Lilly & Co.
Ampoules Glucose (Dextrose, U. S. P.) Lilly 50 Gm., 100 c.c.

Parke, Davis & Co.
Parke, Davis & Company's Cod-Liver Oil with Viosterol 5 D.

Sandoz Chemical Works, Inc.
Scillaren.
Tablets Scillaren.
Solution Scillaren.
Scillaren-B
Ampoules Scillaren-B.

NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Synephrin. — Hydroxyphenylmethylaminoethanol Hydrochloride.—The hydrochloride of an alkaloid obtained synthetically. Synephrin is used as a vasoconstrictor. It is less toxic than either epinephrine or ephedrine, and its vasoconstrictor action, while not so pronounced as that of epinephrine, endures for a longer time. In combination with procaine hydrochloride it is useful for local anesthesia in dental operations and in minor surgery in cases in which a bloodless area is not required. The drug is also supplied in the form of Synephrin Solution "A", Ampoules Synephrin-Procaine, 3 c.c. and Hypodermic Tablets Synephrin-Procaine. Frederick Stearns & Co., Detroit.

Mead's Dextri-Maltose with Vitamin B.—A mixture containing approximately: maltose, 52.58 per cent; dextrine, 39.80 per cent; protein, 4.34 per cent; mineral salts, 2.28 per cent; and moisture, 1.00 per cent. It is standardized physiologically to contain in each 2.5 Gm. the vitamin B_1 and B_2 equivalent of approximately 1 Gm. of dried yeast or 2 Gm. of wheat embryo. Mead's Dextri-Maltose with Vitamin B is proposed for use in the diet of infants suffering from Vitamin B deficiency. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., May 3, 1930, p. 1405).

Scillaren.—A mixture of the natural glucosides, scillaren-A and scillaren-B, occurring in fresh squill *Urginea maritima*, in the proportions in which they exist in the fresh crude drug; namely, about 2 parts of scillaren-A to 1 part of scillaren-B. Completely dried scillaren contains approximately 98 per cent of the active glucosides. Scillaren dried in a high vacuum at 78 C. for fifteen hours loses not more than 6 per cent of its weight. The cardiac action of scillaren is essentially similar to that of digitalis; but this action is apparently less persistent than that of digitalis. Scillaren is administered orally and is supplied in the form of tablets containing 0.8 mg. (1/80 grain) of scillaren and in the form of a solution containing 0.8 mg. (1/80 grain) of scillaren. Sandoz Chemical Works, Inc., New York.

Ampoules Glucose (Dextrose, U. S. P.) Lilly, 50 Gm., 100 c.c.—Each ampoule contains dextrose, U. S. P. (New and Nonofficial Remedies, 1930, p. 245) 50 Gm.; distilled water to make 100 c.c.; accompanied by an ampule containing 4 c.c. of a buffer solution. Eli Lilly & Co., Indianapolis.

Parke, Davis & Company's Cod-Liver Oil with Viosterol 5 D.—A brand of cod-liver oil with viosterol 5 D—N. N. R. (New and Nonofficial Remedies, 1930, p. 257). Parke, Davis & Co., Detroit. (Jour. A. M. A., May 31, 1930, p. 1761).

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J. H. NEFF, M. D., University, Va.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

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Editorial

Liver Extracts and Blood Sugar.

The medical reader notes with keen attention the suggestive work that indicates the probability that liver contains a blood sugar reducing substance, as pointed out by the work of Blotner and Murphy,* at the Peter Bent Brigham Hospital. The probable fact that the patient may receive this agent by mouth and that it is non-toxic in action and that it acts on blood sugar concentration in like manner as does insulin makes this of importance in the treatment of diabetes. French workers have issued publications calling attention to the beneficial effect of liver feeding, having experimented with aqueous, alcoholic, glycerin and saline extracts of liver. The French view of this experimental inquiry seems to be that some cases of diabetic patients were benefited, some were not, and some were made worse. Those that were benefited appeared to be diabetics associated with functional insufficiency of the liver; those that were not helped or made worse were cases of glycosuria depending upon a hyperactivity of the liver.

Blotner and Murphy made observations on this subject after the following general procedure. They made blood sugar determinations in from three to eight hours, after a standard test meal of 20 gm. of carbohydrate. 40 gm. of protein, and 35 gm. of fat, red muscle meat being given as protein. The same control diet was used, under the same relations, with the addition of liver extract, allowing for the carbohydrate and protein content of the liver in making up the standard dietary. Calf liver was used. This procedure was followed in twenty-three diabetics. The average decrease in the blood sugar, note the authors, eight hours after the control test meal, in eighteen out of nineteen diabetics, was 32.2 mg.; the average decrease eight hours following the test meal with addition of liver extracts was 79.8 mg.; the average decrease in the twelve diabetics that were given the test meal and 10 units of insulin subcutaneously was 67.9 mg. for the same period of time.

From the foregoing, one may see that there is probably an interesting relation here and that further studies may help the problems of certain diabetics.

*J. A. M. A., Vol. 94, No. 23, page 1811.

Some Statistics in Gall Tract Surgery.

It is informing and interesting to note the experience and results obtained in a large number of cases treated. Statistical data collected from a wide experience enables one to form more trustworthy opinions in regard to the probabilities of success in a given method of treatment. Readers of current medical publications may find such an item of interest as related to surgical procedures on gall-bladder, bile ducts, liver and pancreas, in recent reports from the Mayo Clinic.* Here one notes that during 1929, there were performed 1,113 operations at this clinic for lesions of the gall-bladder and biliary passages. There were 771 operations of cholecystectomy during this year with a death rate of 1.4 per cent. Operations on gall-bladder and common and hepatic ducts for stones or strictures, numbering 984, resulted in a mortality of 2.8 per cent. In this group there were included cases of acute perforation and patients in late stages of debility with jaundice. There were twenty-nine cases of stricture of the common and hepatic ducts with twenty-four recoveries. The operative mortality of 955 cases was 2.2 per cent. It should be added that "all deaths in the hospital are classified as due to the operation."

Lymphatics of the Abdomen and Pelvis in Post-Operative Pleuropneumonia.

Not infrequently internists and physicians are called upon to observe the occurrence of chest complications that exhibit signs some days after abdominal and pelvic operations. Indeed after days following operation, in that period when surgical procedures begin to

*Proceedings of the Staff Meeting of the Mayo Clinic, May 7, 1930.

eliminate themselves from the picture of the convalescing operative case, a chill, or sudden rise of temperature, or a sensation of pleural pain, disturbs the patient; the uneventful course of convalescence is changed; and a new train of septic symptoms harass the patient and attendants. Frequently, physical signs are difficult to elicit; no cough or difficult inspiration or expiration symptoms are observed; percussion and auscultation of the chest discloses little upon which to make a diagnosis; later more evident signs may be found; percussion and auscultation, in the course of days, discloses the lurking deep infection; pneumonia and empyema may easily be diagnosed later; later still, the patient may drag through weeks of complicating conditions of convalescence.

Notation of such experiences will suggest other possible combinations of complications following operations in the abdomen and pelvis that appear to be transmitted, later in the post-operative period, by lymphatics. In this connection, Higgins* has drawn attention to the lymphatic drainage from the diaphragmatic pleura into the peritoneal cavity. He injected material into the peritoneal space of animals and observed means of removal through lymphatic routes. He noted that one of the more effective organs in removal of foreign particles is the diaphragm, for within a few minutes after peritoneal injection, lymphatic channels on the pleural surface of the diaphragm were colored by injected particles. By this means, five principal lymphatic drainages were traced; three drain anteriorly, by the way of the sternum and the anterior and posterior mediastinum, emptying into the thoracic duct near its venous conjunction. Besides these, two groups of lymphatics pass posteriorly and divide, one draining into the retroperitoneal region back of the kidney and the other into the peritoneal sac and ultimately to the receptaculum chyli.

One has only to review in a most casual manner the illustrations of the lymphatic system in a work on anatomy to bring clearly to mind the rich network of these structures. One observes that lymphatics follow along the course of blood vessels. The lymphatics of the stomach, duodenum, jejuno-ileum and ileocecal and the large intestines serve as a means of possible channels of infection, and the complicated lymphatics of the liver, so adjacent to the thoracic cavity and the diphragm, may but increase the avenues of transmission of septic agents from the operative field below the diaphragm. It is interesting to observe here that anatomists† point out that there is an exceedingly rich plexus of lymphatic capillaries in the thoracic and in the abdominal surface of the diaphragm, especially in the region of the central tendon.

*Higgins, Proceedings of Staff Meeting of the Mayo Clinic, August 14, 1929.

Lymphatics of the Stomach and Carcinoma of the Stomach.

Horton* points out in a publication the striking fact that carcinoma of the stomach rarely invades the duodenum. While it spreads readily in all directions in the wall of the stomach and even to the pyloric ring, carcinoma appears to stop here abruptly. After giving expression to various theories and after presenting a paper of experimental procedures touching on this question, the opinion is given that there is a discontinuity between the submucous lymphatics of the stomach and the duodenum. This is explained by Horton in the condition that there is a connective tissue septum on the pylorus which separates the submuca of the stomach and the duodenum and besides separates the circular musculature of the stomach from the corresponding circular coat in the duodenum, thus making a double barrier to lymphatic connection.

In the examination of thirty-five specimens by injection with India ink and with India ink gelatin mixtures, there was not demonstrated any continuity between the submucous lymphatics of the stomach and those of the duodenum.

The drainage of the stomach was shown to be by four distinct areas: the largest drained by lymph nodes along lesser curvature; the second along greater curvature; the third drains toward splenic group of nodes; and the fourth drains distal portion of the pars pylorica toward nodes above pancreas.

Balfour in discussing lymphatics of the stomach and duodenum emphasizes importance of surgical phases of this question in operation upon patients with carcinoma of the stomach. He points out that one of the commonest errors made in surgery of the stomach is to mistake large infected lymph nodes in cases of cancer for carcinomatous nodes. For some patients, he points out, suffering from

†Morris—Human Anatomy—Jackson, 8th Edition.

*Proceedings of Staff Meetings of the Mayo Clinic, December 28, 1927.

small operable cancers of the stomach have been denied the chance of a cure because inflammatory changes in the nodes were attributed to malignant invasion.

An Appreciation.

It would seem to be a work of supererogation for the editor to express for the members of the Society the sense of appreciation that everyone feels over the enthusiastic and effective work that is being done for doctors in Virginia by the Department of Clinical Education. It would seem to be useless to say here in writing what everyone feels, to give expression to an appreciation of unselfish work and laborious duties discharged by Dr. J. A. Hodges during the past months as he has striven to bring to the working and practical physicians in the field a revival of interest in and a review of clinical diseases.

Knowing full well that it is only by constant reading and review and practice in the clinical side of medicine that medical men can be kept "on their toes," this Department, under Dr. Hodges' inspiration and daily assistance, has done a good part during the past months in giving clinics and in fostering programs at medical meetings throughout the State. It is a self-sufficient and small man who says to himself, "I need no freshening up." Medicine moves along and progress is made, and even old facts, old truths, and old knowledge acquired in other days fade away and mental alertness and judgments lose out unless active and renewed efforts are made to review the diseases and their treatment, time upon time. Even men who follow the specialty of teaching medicine and become through the year schoolmasters, so to speak, in the faculties of medical schools, find that unless they keep abreast of the times their rating falls. While one may have been most excellent in school-days and may have acquitted one's self as a leader in class work in college, ere the decade has past and he has withdrawn himself into some small section of medicine as a teacher, he finds that with the other branches of medicine, he becomes less and less familiar, and it is probable that at the end of the first decade he could not pass successfully an examination that his comrades are placing on the blackboard for the students whereby they are to be judged as to their knowledge. If this is true of the school-teacher and professor in medicine who represents the student-type of mind in medicine, it is much more true of the working physician in the active field of practice.

So it becomes self-evident that constant reviewing and studying of medicine in clinics, demonstrations, meetings, discussions and lectures is needed among medical practitioners through all stages of their career, and a medical society that undertakes to carry and forward a plan of teaching the practitioners at their work is performing a high service to its members.

It may be said the unselfish work of the organizer and fosterer of this mission in Virginia, as shown in the services of Dr. J. Allison Hodges, deserves and receives the keen appreciation of the profession of this State.

News Notes

History of Medicine in Virginia

The first Volume of the History of Medicine in Virginia, prepared under the auspices of the Medical Society of Virginia, by its Committee on History of Medicine in Virginia, with Dr. Wyndham B. Blanton as chairman, is ready.

Send your order NOW. Announcement in regard to this appears on fourth cover advertising page.

The University of Virginia, Department of Medicine, Finals

Were held June 8 to 10, inclusive, in connection with the graduating exercises of the various departments of the University. In addition to the numerous dances and the final ball, the exercises included the baccalaureate sermon on the 8th, by Dr. James I. Vance, of Louisville, Ky. That afternoon, there was an organ recital in the McIntire Amphitheatre, by Prof. H. R. Pratt.

Monday, the 9th, was the date of the annual meeting of the Alumni Association, as also of the business session of the rector and the board of visitors. Both bodies adjourned at noon to attend the brief exercises in Madison Hall auditorium, incident to the presentation to the University of a bust of President E. A. Alderman. This was the gift of Mr. Charles Steele, an alumnus of New York. Following this, the alumni luncheon to graduates was served in the Memorial Gymnasium. On this occasion, Dr. David B. Lyman, Wallingford, Conn., welcomed the graduates into the

Alumni Association. From 5 to 6 P. M., President and Mrs. Alderman were "at home" to the faculty, board, alumni and graduates, at their home, on Carr's Hill.

Dr. Dumas Malone, former professor of history in the University, addressed the Phi Beta Kappa Society in Madison Hall, on Monday evening, the 9th, following which the final ball was held. Medical alumni initiates into the Society are: Drs. Willis Campbell, Memphis, Tenn., and Alfred L. Gray, Richmond, Va. Initiates from the medical graduates are: Drs. Eugene Beverly Ferris, Jr., Jackson, Miss.; William Hamilton Roper, University, and Robert Lomax Wells, Virginia Beach.

Class exercises were held on the lawn of the University on Tuesday, the 10th, and the degrees were conferred upon more than 400 graduates at exercises held that afternoon. There were fifty-seven graduates in medicine. Following is a list of their names with hospital appointments:

University of Virginia Hospital, University, Va.: Drs. William Miller Gammon, Bristol; Paul Kells, Wilmington, N. C.; James Peter King, Radford; Archibald Alexander Little, Jr., Meridian, Miss.; Alexander Taylor Mayo, Portsmouth; Frederick McCulloch Morrison, Lynchburg; John Ryan Myers, Lynchburg; Benjamin Watkins Rawles, Jr., Richmond; Alfred Chambers Ray, Jr., Ashland, and James Edwin Wissler, University.

Department of Pharmacology, University of Virginia, University, Va.: Dr. Dorothy Dillard Brame, North Wilkesboro, N. C.

Department of Biochemistry, University of Virginia, University, Va.: Dr. Eugene Beverly Ferris, Jr., Jackson, Miss.

Worcester City Hospital, Worcester, Mass.: Dr. Walter Johnson Allegree, University.

Church Home and Infirmary, Baltimore, Md.: Drs. Henry Reid Bourne, Wytheville, and Claude Brackett Smith, Wardensville, W. Va.

Wesley Memorial Hospital, Chicago, Ill.: Dr. Manfred Call, III, Richmond.

St. Luke's Hospital, New York, N. Y.: Drs. Hill Carter, III, Ashland, and Robert Lomax Wells, Virginia Beach.

Nassau Hospital, Mineola, N. Y.: Dr. Joseph Paul Coco, Ozone Park, L. I., N. Y.

Virginia Mason Clinic, Seattle, Wash.: Drs. Joel LeRoy Deuterman, Ballston; Harold Hiques McLemore, Norton, and Beverly Kennon Peter, Harrisonburg.

Union Memorial Hospital, Baltimore, Md.: Drs. John Randolph Eggleston, Sewanee, Tenn., and Richard Franklin Slaughter, Jr., Hampton.

Orange Memorial Hospital, Orange, N. J.: Dr. Ernest Scott Elliott, Independence.

St. Elizabeth's Hospital, Richmond, Va.: Dr. Joseph Helms Farrow, Roanoke.

Bellevue Hospital, New York, N. Y.: Drs. George Tayloe Gwathmey, Jr., University, and Berglict Stromsoe, Hempstead Gardens, L. I., N. Y.

Baltimore City Hospital, Baltimore, Md.: Dr. Paul Swanson Hill, Wise.

Englewood Hospital, Englewood, N. J.: Dr. Charles Keppler, Jr., Rosemont, N. Y.

Scott and White Hospital, Temple, Tex.: Dr. Southgate Leigh, Jr., Norfolk.

U. S. Navy Hospital: Drs. Thomas Lee Allman, Glade Hill, and James Edward Amiss, Luray.

U. S. Public Health Service: Drs. William Andrew Brumfield, Jr., Farmville, and Robert Barrett Skinner, Petersburg.

Post-Graduate Hospital, New York, N. Y.: Drs. Robert Edwin Odom, Norfolk, and Alfred Wayland Pinkerton Bayonne, N. J.

Lakeside Hospital, Cleveland, Ohio: Drs. Edward Stewart Orgain, Richmond, and William Hamilton Roper, University.

Barnes Hospital, St. Louis, Mo.: Dr. Wilmer Howard Paine, Jr., Knoxville, Tenn.

Charleston General Hospital Charleston, W. Va.: Dr. John Claiborne Palmer, Guinea.

T. C. & I. Hospital, Birmingham, Ala.: Dr. John Day Peake, Rocky Mount.

Charity Hospital, New Orleans, La.: Drs. Prosser Harrison Picot, Richmond, and William Langley Sibley, Birmingham, Ala.

Lankenau Hospital, Philadelphia, Pa.: Dr. Daniel Brown Pierson, Jr., Narberth, Pa.

Massachusetts General Hospital, Boston, Mass.: Dr. Morton Morris Pinckney, Richmond.

Iowa Methodist Hospital, Des Moines, Ia.: Dr. William Orgain Purdy, Brodnax.

University of Pennsylvania Hospital, Philadelphia, Pa.: Dr. Paul Houston Revercomb, Covington.

U. S. Army Hospital: Drs. Charles Wil-

liam Rodgers, Staunton and Achilles Lacy Tynes, Staunton.

Memorial Hospital, Richmond, Va.: Dr. Lewis Benjamin Sheppard, Glen Allen.

Bell Memorial Hospital, Kansas City, Kans.: Dr. Emory Lee Shiflett, Elkton.

Baroness Erlanger Hospital, Chattanooga, Tenn.: Dr. Oliver Leon Von Canon, Chattanooga, Tenn.

Iowa State University Hospital, Iowa City, Ia.: Dr. Allan Elliott Walker, Jr., Washington, D. C.

Roanoke City Hospital, Roanoke, Va.: Dr. Thomas Leonard Watson, Jr., University.

St. Joseph's Hospital, Paterson, N. J.: Dr. Richard Elwy White, Glen Rock, N. J.

Vanderbilt University Hospital, Nashville, Tenn.: Dr. William Chalmers Wills, Lynchburg.

Since commencement, a number of fellowships have been announced for the year 1930-1931. These include Dr. Antonio Gentile, of Suffolk, recently of University Hospital, in surgery, and Dr. James Peter King, Radford, in neurology.

Resolutions Governing Program for Norfolk Meeting of State Society.

1. That at the next meeting the report of the House of Delegates be made at noon on Thursday, October 23, after which the meeting shall adjourn finally to an oyster roast;

2. That the clinics to be given on Tuesday afternoon, October 21, be divided into three (3) groups, conducted simultaneously, at different locations, and that notice of the place and time of the clinics be published in the "Monthly" in advance for the information of members;

3. That notices be sent to members, inviting them to submit titles of "voluntary" papers to be placed on the program, but that no paper be accepted unless the title with an abstract of the paper of 150 to 200 words, be sent to the Secretary by September 1;

4. That if the number of titles, with abstracts submitted, be in excess of the number necessary to make up a program, such additional titles of papers appear in the program to be read by title.

The above resolutions, governing the program for the next meeting of our State Society in Norfolk, were adopted unanimously at a joint meeting of the committees on Publication and Program and on Scientific Work and Clinics, held on April 25th.

Letters were sent all members of the State Society, the latter part of June, calling attention to the adopted policy with regard to the Program and asking for papers. Members desiring to present papers at the Norfolk meeting are requested to send in their titles with abstracts by the designated time, as there will be no other letters sent out with regard to the program.

The Mid-Tidewater Medical Society

Will hold its regular quarterly meeting on July 22—the fourth Tuesday in July—at Millers' Tavern, on the Tappahannock Highway. Dr. Horace Hoskins, Saluda, is president, and Dr. Malcolm H. Harris, West Point, secretary. Drs. A. I. Dodson and H. Page Mauck, both of Richmond, will be the speakers at this meeting, their subjects being "Treatment of Gonorrhea by the General Practitioner" and "Treatment of Common Fractures by the General Practitioner," respectively.

Dr. B. M. Randolph,

For a number of years a practicing physician of Washington, D. C., and Professor of Clinical Medicine at George Washington University Medical School, is returning to Virginia, this month, and will be located in Charlottesville, Va.

Married.

Dr. Haddon Christopher Alexander, Farmville, Va., and Miss Judith Harris Watson, Richmond, June 18.

Dr. Samuel Armistead Anderson, Jr., Richmond, and Miss Frances Webster, of Boston, Mass., June 16.

Dr. Philemon Hawkins Neal, New York City, and Miss Virginia Elizabeth Thornton, Richmond, Va., June 14. Dr. Neal, formerly of South Boston, Va., graduated from the Medical College of Virginia several years ago, and was located for a time at Catawba Sanatorium, Va., before going to New York.

Dr. Reuben Foster Simms, of the class of '28, Medical College of Virginia, and Miss Annie Sue Pearsall, both of Richmond, June 14.

Dr. Early Thomas Terrell, Jr., Williamsburg, Va., and Miss Eugenia Jackson Beazley, Beaver Dam, Va., June 18. Dr. Terrell graduated from Medical College of Virginia in 1929, and has since been connected with the

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staff of the Eastern State Hospital in Williamsburg.

Teaching Health Through the School Lunch.

The luncheons which the pupils buy from the school lunchrooms are being checked in certain schools, and the children who have selected a well-balanced lunch are given "A" cards. Tickets explaining the deficiencies are given to those whose lunches are not well-balanced. This method has resulted in a marked increase in the consumption of milk and in the interest shown by the mothers. This scheme for making the school lunch an integral part of the health curriculum is being worked out for the National Dairy Council by Dr. Lydia J. Roberts, of the University of Chicago. When the study is completed the plan and lessons will be available for schools throughout the country.

Dr. Wallace M. Yater,

Washington, D. C., has taken charge of the chair of medicine at Georgetown University School of Medicine, having succeeded the late Dr. Wilfred M. Barton.

Dr. Charles P. Cake,

Norfolk, Va., has for several months been senior resident physician in the Tuberculosis Division of the Herman Kiefer Hospital, Detroit, Mich. He expects to return to Virginia upon completion of his work there.

The Association of American Physicians,

At its meeting in May, decided to hold its next annual meeting at Atlantic City, N. J., May 5 and 6, 1931. Dr. Rufus I. Cole, New York, was installed as president. Dr. Thomas B. Futcher, Baltimore, was elected president-elect, and Dr. James H. Means, Boston, was re-elected secretary.

Dr. Charles S. Groseclose,

Formerly of Ivanhoe, Va., and a graduate in medicine from the University of Virginia in 1929, has just located at Buena Vista, Va., after completing an internship at Jefferson Hospital, Roanoke, Va.

New Hospital at Reidsville, N. C.

The Annie Penn Memorial Hospital was formally dedicated in June at Reidsville, N. C. It is completely equipped with all modern conveniences and has fifty beds and six bassinets. It will be open to both whites and negroes.

Work of National Leprosarium During Past Fiscal Year.

A report recently submitted indicates that during the last fiscal year at the National Home for Lepers, maintained by the Public Health Service, at Carville, La., forty-nine new patients were admitted. There was an average of slightly more than 300 patients in the institution during the year. Nineteen patients were released as no longer a menace to the public health; six additional patients complied with the requirements for parole, but owing to their deformities and disfigurements which could not be cured, these patients elected to remain in the hospital. The nativity of the various patients of the leprosarium indicates that Louisiana and Florida had the largest number of any of the States.

Chaulmoogra oil, by mouth, was used as routine treatment in 137 patients, the dosage ranging from nine to 375 drops daily. One hundred and eighty patients are taking hypodermic injections of a special derivative of chaulmoogra oil. Dental work has continued as necessary. Supplementary treatment by means of physiotherapy and special light treatments are also given.

Value of Milk to School Children, Scotland.

Twenty thousand school children of Lanarkshire, Scotland, are to be included in an investigation of the value of an additional daily milk ration. Ten thousand are to receive the milk, and 10,000 will not receive it. All the children will be weighed and measured so that comparison between the two groups will be possible. A recent similar experiment on a small scale showed marked improvement in children of all school ages who received the additional milk.

University of Virginia Medical News.

Dr. C. E. Waller, Surgeon in the U. S. Public Health Service, visited the Medical School on May 15th.

Dr. John H. Neff, Professor of Urology, attended the meetings of the Association of American Genito-Urinary Surgeons at French Lick, Indiana, on May 22. He read a paper on "Enucleable Multilocular Abscess (Carbuncle) of the Kidney." On June 10th Dr. Neff attended the meetings of the American Urological Association in New York City.

Dr. James Edwin Wood, Associate Professor of Internal Medicine, spoke on "Blood Pressure Changes in Hypertensions" before the Mecklenburg County Medical Society, meeting in Charlotte, N. C., on May 19th.

At the Final Exercises on June 10th the

University graduated fifty-seven students with the degree of Doctor of medicine.

Dr. C. F. Hegner, Associate Professor of Surgery in the Medical School of the University of Colorado, made a brief visit here on May 31st.

Dr. Barney Brooks, Professor of Surgery in the Medical School of Vanderbilt University, visited our School on June 4th.

Dr. Willis C. Campbell ('04), Profesor of Orthopedic Surgery in the Medical School of the University of Tennessee, came here on June 16th for initiation into the University Chapter of Phi Beta Kappa.

Dr. J. Normant Baker ('98), Health Commissioner of Alabama, visited the Medical School on June 16th.

Dr. Allen Voshell, Associate Professor of Orthopedic Surgery, attended the meetings of the American Orthopedic Association at Boston from June 18th to 20th.

Dr. Lawrence T. Royster, Professor of Pediatrics at the meeting of the American Medical Association in Detroit on June 24th. As President of the Association of American Teachers of Diseases of Children he gave also an address on "Some Pediatric Problems."

Dr. Vincent W. Archer, Associate Professor of Roentgenolgy, read a paper on "Roentgen Diagnosis of Ascariasis" at the meeting of the American Medical Association in Detroit.

Dr. Dudley C. Smith, Associate Professor of Dermatology and Syphilology, was elected to membership in the American Dermatological Association at the annual meeting on June 19th in Cleveland.

H. E J.

Denver Studies Causes of Its High Infant Mortality.

An infant death rate in the salubrious city of Denver of ninety-one out of every 1,000 live births in 1928, while the rate for the birth-registration area of the United States during the same year was only sixty-eight, has aroused the city. With a grant from the Laura Spelman Rockefeller Memorial Fund and local gifts, the University of Denver has undertaken an investigation of the causes of infant mortality in the city. The director of the Denver public-health council reports that during the first two months of the present year there was a substantial decrease in the rate.

Dr. J. C. Anderson,

Chatham, Va., and his son, Edward, were both seriously injured early in June, when the car in which they were riding left the highway and overturned. A late announcement is to the effect that Dr. Anderson is much improved.

The George Washington University Medical Society,

Washington, D. C., at its annual meeting in May, under the presidency of Dr. D. L. Borden, elected Dr. Wm. Thornwall Davis as president for the 1930-1931 session. Dr. Albert P. Tibbets was elected vice-president; Dr. W. Raymond Thomas, treasurer, and Dr. Henry L. Colvin, secretary.

How Worth While Is It To Fight Diphtheria?

In New York City during the first three months of the present year both the number of cases of diphtheria and the number of deaths from the disease was cut to less than half, as compared with the average number recorded for the corresponding months during the last six years. This reduction has followed the intensive campaign carried on by the city department of health during 1929, in which more than 200,000 children were given diphtheria toxin-antitoxin treatments. Not one of the 137 deaths occurring during the last six months of 1929 had received the complete series of treatments and the Schick test to determine immunity.

News From Medical College of Virginia.

Dr. Isaac A. Bigger, associate professor of surgery at Vanderbilt University, has accepted the professorship of surgery at the Medical College of Virginia, Richmond, beginning August 15, 1930. Dr. Bigger was assistant professor of surgery in the University of Virginia, Department of Medicine, before going to Vanderbilt.

Dr. George E. Vincent, lately president of the Rockefeller Foundation, was the speaker at the ninety-second commencement exercises of the Medical College of Virginia, Richmond. This year there were 196 graduates, ninety-five in medicine, twenty-three in dentistry, thirty-six in pharmacy, and forty-two in nursing. A report on these exercises appeared in the June issue of the MONTHLY.

Dr. Joseph Lyon Miller, Thomas, W. Va., was awarded the honorary degree of doctor of letters by the Medical College of Virginia, Richmond, at the commencement exercises, on June 3, 1930. Doctor Miller is an alumnus of the college of 1900 and is distinguished as

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a medical historian, bibliophile, and collector of rare medical books.

The Medical College of Virginia, Richmond, has just received a grant of $120,000, $40,000 from the Julius Rosenwald Fund and $80,000 from the General Education Board, for the construction of a dormitory and educational unit for the school of nursing of the St. Philip Hospital. This is an institution for negroes, owned and operated by the college.

Dr. C. P. Ryland,

Of the class of '29, Medical College of Virginia, after a year's internship at St. Vincent's Hospital, Norfolk, Va., has located in Buena Vista, Va., where he will be engaged in general practice.

The U. S. Civil Service Commission,

Washington, D. C., announces an open competitive examination for Associate Bacteriologist (Medical), applications for which must be on file with the Commission not later than July 30, 1930.

New Virginia Councilor.

Dr. Alfred L. Gray, Richmond, has been appointed Councilor of the Southern Medical Association from Virginia, the appointment having been made recently by the President of the Association, Dr. Hugh S. Cumming, Washington, D. C. Dr. Gray succeeds Dr. Lawrence T. Royster, University, whose term had expired.

Summer Clinics in Chicago.

The officers of the Chicago Medical Society, together with members of the staff of the Cook County Hospital, will hold their summer clinics at Cook County Hospital, Chicago, August 11-22. These clinics were held first in 1926 and the registration has included doctors from most of the States in the Union. There has been about fifty per cent come back of those who have attended courses at these clinics.

As the number of registrations has to be limited because of size of the amphitheatre, registration in advance is necessary. The fee for this purpose is ten dollars. Registration is open to all members of the American Medical Association and its component societies. Clinics will be held simultaneously in the medical and surgical amphitheatres. For further information and registration blanks, communicate with Chicago Medical Society Summer Clinics, 185 North Wabash Avenue, Chicago.

Beginning May 24th, the Society is publishing in its weekly *Bulletins* the pathological conferences conducted by Dr. R. H. Jaffee, at the Cook County Hospital. It is announced that these conferences are becoming as well known as those of the Massachusetts General Hospital, which are published each week in the *New England Medical Journal*. Information about these may also be obtained from above address.

Dr. Hal McCoy,

Crozet, Va., has announced that he is moving to Kahului, Maui, Hawaii.

Dr. and Mrs. F. H. Crawford

Have returned to their home at Mt. Sidney, Va., after a year spent in Vienna, Austria, where Dr. Crawford was taking post-graduate work in diseases of the eye, ear, nose and throat.

Dr. and Mrs. Wyndham B. Blanton,

Richmond, Va., sailed from New York, July the 2nd, on the *S S. Providence*, bound for the Mediterranean. They expect to visit Lisbon, Athens, Egypt, Palestine and Italy, before their return the latter part of August.

The Medical Society of the District of Columbia,

At its annual meeting, held recently in Washington, elected the following officers for the year beginning July 1, 1930: President, Dr. William H. Hough; vice-presidents, Drs. Edward G. Seibert and A. Frances Foye, and secretary-treasurer, Dr. Coursen B. Conklin, re-elected.

Physical Condition of Working Boys.

Inflamed glands, nasal obstructions, malnutrition, pyorrhea, and decayed teeth were found in large numbers of the 2,700 working boys in the West Side Continuation School, New York City, during a recent examination by a department of health physician. One-fifth of them were underweight, and almost the same proportion had defective vision (corrected by glasses in a number of cases). To sum up, less than one in seven of the boys was found free from physical defects. The close conformity of these findings with those of a similar study made several years ago at the East Side Continuation School suggests that the situation reflects the conditions as they exist generally among New York City working boys.

Baby Clinic in Gloucester County.

Gloucester County, Virginia, held its first baby clinic at Hayes Store on June 13th. Through the gift of Mrs. J. Blair Spencer, the clinic was established there as a memorial to her mother, the late Mrs. H. V. Johnson, of Washington, D. C. Drs. H. A. Tabb, J. Blair Spencer, J. D. Clements, and J. W. Smith are among the local doctors who have pledged their services to the work of the clinic.

Dr. J. B. Graham,

Recently connected with the Pathological Laboratory of the University of Virginia, announces his removal to Bell Memorial Hospital, Kansas City, Kans.

The Medical and Chirurgical Faculty of Maryland

Held its annual meeting and celebration of the Centennial of its Library in Baltimore, the latter part of April, under the presidency of Dr. Henry M. Fitzshugh, of Westminster. The Centennial Exhibit held at this time was "assembled as an attempt to visualize the period in Baltimore at the time of the founding of the Library. To do this many things relative to members of the profession from the time of its founding" were secured. The handsome program of this meeting contained also a Catalog of the Exhibit.

Eye Clinics in Southampton County.

During the month of April, the State Department of Health conducted eye clinics in Southampton County, Virginia, and glasses were put on 120 indigent children, all badly in need of them. All of these children were backward with their school work on account of impaired vision. Although the Welfare Department of the County raised over $700 for the clinics and hospitalization of a number of cases, great credit is also due the Virginia Commission for the Prevention of Blindness and to the staff of the Medical College of Virginia for holding the clinics. Drs. Emory Hill and R. H. Courtney of the College conducted the clinics.

The John Phillips Memorial Prize.

The American College of Physicians announces the John Phillips Memorial Prize of $1,500.00, to be awarded for the most meritorious contribution in Internal Medicine and Sciences contributing thereto, under certain conditions named on page 202 of the June issue of the MONTHLY.

Contributions must be mailed on or before August 31, 1930, to the Executive Secretary of the American College of Physicians, Mr. E. R. Loveland, 133-135 S. 36th Street, Philadelphia, Pa.

Mental Hygiene in Argentina.

Argentina has recently evidenced recognition of the importance of mental hygiene by organizing a league of mental hygiene to study methods for the prevention of mental disorders and improvement in the treatment of mental patients. The league will work for the application of mental-hygiene principles in school, industrial establishments, and elsewhere, organize mental-hygiene conferences, and try to enlist the cooperation of the public authorities.

The South Carolina State Medical Association,

At its annual meeting in the late Spring, installed Dr. Kenneth M. Lynch, of Charleston, as president and made Dr. Charles A. Mobley, of Orangeburg, president-elect. Dr. Edgar A. Hines, Seneca, was re-elected secretary. Greenville was selected as the 1931 place of meeting.

Dr. E. C. Joyner,

Of the class of '28, Medical College of Virginia, after two years at the North Carolina Baptist Hospital, Winston-Salem, N. C., is for a time at his former home in Suffolk, Va.

Dr. S. G. Miller

Has returned to Virginia, after a year at the Chesapeake and Ohio Hospital, Huntington, W. Va., and is now located at Warm Springs, Va.

Dr. L. C. Haynes,

Mt. Jackson, Va., is home again after a visit to Seattle, Wash. On his return trip, he stopped for some time at the Mayo Clinic, Rochester, Minn.

National Tuberculosis Association.

At the annual meeting of this Association, in Memphis, Tenn., in May, Dr. Henry Boswell, Jr., of Sanatorium, Miss., was elected president; Dr. Stuart Pritchard, Battle Creek, Mich., and Dr. James A. Price, Oakville, Tenn., vice-presidents, and Dr. Charles J. Hatfield, Cincinnati, and Henry B. Platt, New York, were re-elected secretary and treasurer, respectively. The next meeting is to be held in Syracuse, N. Y.

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Dr. E. B. Miller,

Elkton, Va., was among those who attended the Shriners' convention, held in Toronto, Canada, recently.

The West Virginia State Medical Association

Held its annual meeting at While Sulphur Springs, W. Va., the latter part of May, under the presidency of Dr. Walter E. Vest, of Huntington. This meeting was well attended, there was an excellent program, and good weather added to the success of the occasion. Clarksburg was selected as the 1931 place of meeting. Dr. C. H. Maxwell, Morgantown, newly elected president, will take office January 1, 1931. Drs. A. H. Hoge, Bluefield, and H. L. Goodman, Ronceverte, were elected vice-presidents. Dr. T. M. Barber, Charleston, and Mr. Joe W. Savage, Charleston, were re-elected treasurer and executive secretary, respectively.

At this meeting the West Virginia Association amended its Constitution so as to include two councilors-at-large, these to be the retiring president and his immediate predecessor. The retiring president is to be chairman of the Council. All councilors are elected for a term of two years each.

Dr. Greer Baughman,

Richmond, Va., has just been unanimously re-elected president of the Richmond Council of Social Agencies for the coming year.

Drs. W. Brownley Foster and Fred J. Wampler were elected members of the executive committee.

"First Aid Service in Small Industrial Plants"

Is name of a booklet which has just been published by the Policyholders Service Bureau of the Metropolitan Life Insurance Company, 1 Madison Avenue, New York City. This publication is one of a series issued by the Industrial Hygiene service of the Bureau dealing with the health of industrial and commercial workers. Those interested may secure copies by applying to the above given address.

The Alumni Association of the Medical College of Virginia,

At its annual meeting during commencement exercises of the College, the last of May, elected the following officers for the ensuing year: President, Dr. Walter E. Vest, Huntington, W. Va.; vice-presidents, Dr. W. H. Street, Richmond; Dr. Joseph D. Collins, Portsmouth; Mr. Lewis E. Jarrett, Richmond; Mrs. Birdie W. Bush, Richmond; secretary, Dr. Charles L. Outland, Richmond; treasurer, Dr. F. H. Beadles, Richmond.

The Association was honored this year by the presence of Dr. George T. Snead, of Pungo, Princess Anne County, Virginia, who graduated from the College in 1880. As the oldest alumnus present, he was presented a loving cup by the Association at its annual dinner at the Commonwealth Club, Richmond, on the evening of June the 2nd. There were 350 present at this dinner.

Doctors on City School Board.

Drs. Ramon D. Garcin, Roshier W. Miller, and Clifton M. Miller are three of the members of the Richmond City School Board, as elected by the City Council at its meeting June 2nd, for a term of two years. All three were re-elected.

Dr. James S. Chalmers,

Formerly of Appalachia, Va., is now located at Sand Springs, Okla. Dr. Chalmers has leased and re-opened the Home Hospital in that place where he is engaged in industrial surgery. This hospital is a 40-bed modern hospital for general work in a large industrial center and is open to all members of the Tulsa County, Okla., Medical Society.

Dr. Robert Lemmon,

For some years of Lynchburg, Va., has been appointed post surgeon at the Virginia Military Institute, Lexington, Va., effective September 1st, to succeed the late Dr. R. Bruce James. Dr. Lemmon graduated in Medicine from the University of Virginia in 1902 and was connected with the medical service of the U. S. Army for eight years.

Dr. William A. Graham,

Of the class of '29, Medical College of Virginia, formerly of Hillsboro, Ky., has located at Kilmarnock, Va., for the general practice of medicine. During the past year, Dr. Graham has been connected with the Hospital Division of the Medical College of Virginia.

Southern Pediatric Seminar.

The tenth session of the Seminar will be held at Saluda, N. C., in the Land of the Sky, July 28th to August 9th. A group of Southern pediatrists, interested in the advancement of their specialty, have volunteered their services to create a teaching center at which may be presented the latest developments in this im-

portant branch of the practice of medicine. There is a registration fee of $25.00 for incidental expenses of the Seminar. All lecturers and instructors are serving not only without compensation, but at their own expense. Dr. William A. Mulherin, Augusta, Ga., is dean, and Dr. D. Lesesne Smith, Saluda, N. C., registrar. Dr. Lawrence T. Royster, University, Va., is one of the lecturers. For information as to accommodations, address the Registrar.

Dr. and Mrs. Tom A. Williams,

Formerly of Washington, D. C., but more recently of Miami Beach, Fla., have taken a residence in Washington for the summer and will remain there until October.

World's Record on Dental Correction.

Southampton County, Virginia, boasts of being the first county in the world with 100 per cent dental correction complete in its white schools, while only two cities, Athens, Ga., and Jackson, Miss., have reached this goal. Early in 1930, the County School Board offered a day's holiday to the school securing 100 per cent dental correction. The last school in the county enjoyed its holiday on May 23rd.

While the campaign was inaugurated primarily to secure dental correction in school children, it also emphasized the necessity of regular dental work and encouraged children to help themselves to get this service, as every parent or child was required to make some payment, if nothing more than a few eggs.

Credit for this work is due the State Board of Health for the services of two dentists, the superintendent of schools and his corps of teachers, and to Dr. B. B. Bagby, health officer.

New Hospital Completed at Fort George G. Meade.

Fort George G. Meade, Maryland, where several thousand men of the Regular Army, National Guard, Organized Reserve Corps, Citizens' Military Training Camps and Reserve Officers' Training Corps, will receive practical field training this summer, has a new hospital, according to announcement by Col. F. M. Hartsock, Medical Corps, Surgeon of the Third Corps Area. The building has just been completed, in time for the summer training activities, at a cost of $243,233.00. It is of the Colonial type, in harmony with the type of new construction at Fort Meade, as provided for in the War Department Housing program. Reinforced cement with pressed brick facing has been employed in the structure.

The hospital has accommodations for one hundred patients. It is sub-divided into four wards. There are private rooms, an operating room, an X-ray and pathological laboratory, a dental department, and a dormitory for the enlisted attendants. Medical service will be rendered by four doctors, one dentist, four registered nurses, and thirty-nine enlisted attendants, all members of the Army Medical Department.

Lt. Col. Howard H. Bailey, M. C., of the class of '97, University of Virginia, Department of Medicine, is post surgeon. Maj. Robert B. Shackelford, M. C., of the class of '09, University of Virginia, is one of the four doctors in charge.

Dr. Oscar L. Hite,

Of the class of '29, Medical College of Virginia, recently left for New York City, where he had received an appointment as resident on the service of gastro-enterology at the Lenox Hill Hospital, New York City, on the service of Dr. Max Einhorn, effective June 1st. Dr. Hite had just completed a year's residency at Tucker Sanatorium, Richmond, Va.

Dr. John A. Hardy,

Formerly of Lancaster County, Virginia, and a graduate of the former University College of Medicine, Richmond, Va., in '99, has been quite ill at the hospital in El Paso, Texas, where he has made his home for a number of years. His illness was caused by a finger which became infected while operating several weeks ago, the infection spreading to other parts of the body.

Wanted.

A physician for a rural practice in Northern Virginia, fifty miles from Washington, D. C., in a rich, high, beautiful section, with good schools, churches, excellent people and some bad roads. Collections 80 to 95 per cent—excellent territory, with good income.

Please give the following information in your first letter: Age, married or single, number of children, with ages, where born? Where educated? When and where graduated in medicine? Internship, if any, when and where? Religion of self and wife; member-

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ship in fraternities, clubs, lodges, etc.; Do you hold a license in Virginia?

Address Box 222, Warrenton, Va.—(*Adv.*)

Wanted.

Few younger children for excellent boarding school in Northern Virginia, near Washington, D. C. Girls not over twelve years old. Boys not over eight years old. Enroll now for session beginning September, 1930. Kindergarten. Regular courses. Music. French. Dancing. Apply P. O. Box 222, Warrenton, Va.—(*Adv.*)

Wanted.

Medical resident, active medical service, 100 bed hospital, for one year beginning July 1, 1930. Full maintenance and $75.00 per month. Address Chesapeake and Ohio Hospital, Clifton Forge, Va.—(*Adv.*)

For Sale.

On account of retiring from practice, will sell for 25 per cent of cost, a complete and up-to-date X-ray equipment and accessories. Net cost to me approximately $6,500.00. (Wapplers.) Used very little and appearance of newness. Or will sell single units for 50 per cent of cost. This is a rare chance for a hospital or roentgenologist. Can be seen installed until 20th of July. Address No. 240, care this journal. (*Adv.*)

Obituary Record

Dr. Robert Patton Kelly,

Prominent obstetrician of Lynchburg Va., died June 10th after an illness of several weeks. He was fifty-one years of age and a native of Pearisburg, Va. Dr. Kelly graduated from the former University College of Medicine, Richmond, in 1907, and engaged in general practice in Southwestern Virginia until he went to Lynchburg in 1914. At the time of his death, he was president of the Lynchburg-Campbell County Medical Society, a member of the American College of Surgeons, and had been a member of the Medical Society of Virginia since 1907. He was surgeon for the Norfolk and Western Railway and physician and member of the trustees of the Odd Fellows' Home. His wife and one son survive him.

Dr. James Richard Shacklette,

Well-known physician of Rockingham County, died suddenly from a stroke of apoplexy at his home in Harrisonburg, Va., on June 6th. He was a native of Morrisville, Fauquier County, Va., and was forty-seven years of age. Dr. Shacklette was a graduate of the former University College of Medicine, Richmond, in 1908, and began his practice in Warrenton in 1909. He later practiced in Albemarle County, and at Elkton, and moved to Harrisonburg in 1928. Dr. Shacklette had been a member of the Medical Society of Virginia since 1908. His wife and one daughter survive him.

Dr. David Thomas Gochenour,

Stuarts Draft, Va., died June 4th, of pneumonia. He was fifty years of age and a graduate of the George Washington University Medical School, Washington, D. C., in 1909. Dr. Gochenour was a member of the Medical Society of Virginia. His wife and three children survive him.

Dr. Benjamin W. Bohannon,

Mathews, Va., died April 27th, at the age of seventy-two. He was a graduate of the University of Maryland, School of Medicine, Baltimore, 1889. Dr. Bohannon was a member of the school committee of Mathews.

Col. Christopher Clark Collins, M. C.,

U. S. Army, died suddenly of heart disease, May 11th, at the home of relatives in Lynchburg, Va. He was fifty-eight years of age and graduated from the University of Virginia, Department of Medicine, in 1895. Dr. Collins was a member of the American College of Surgeons and a veteran of the Spanish-American and World Wars.

Dr. Samuel Conway Crow

Died April 11th, at his home in Norfolk, Va., of hypertrophic cirrhosis of the liver. He was a graduate of the University of Michigan Medical School, Ann Arbor, in 1898 and was fifty-five years of age. Dr. Crow served in the medical corps of the Army, during the World War.

Dr. Leslie B. Wiggs,

Lieutenant-Commander, U. S. Navy, retired, died at his home in Richmond, Va., on June 16th, after having been in ill health for some time. He was a native of North Carolina and was forty-nine years of age. Dr. Wiggs graduated from the Medical College of Virginia in 1907. He was one of the first medical officers from Richmond to go into the World War. His wife survives him.